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Illinois Medical Journal

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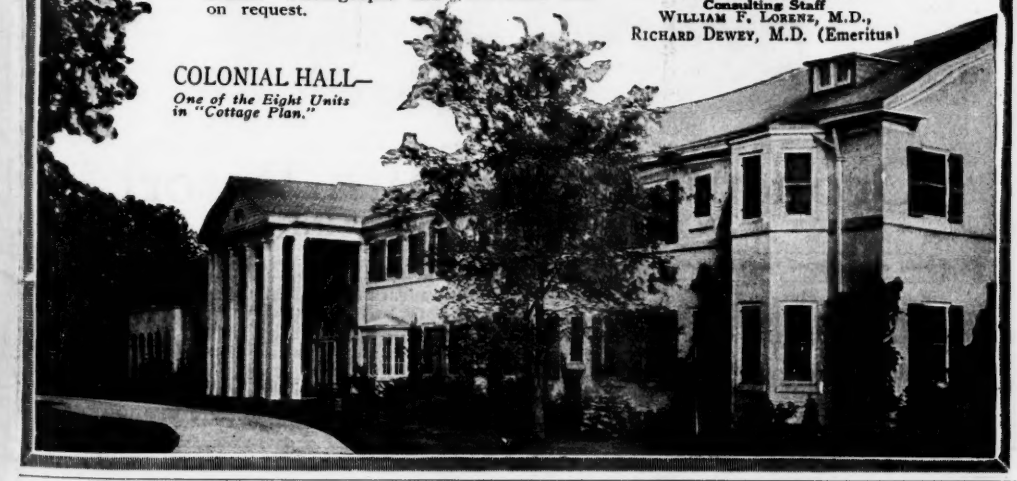

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

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ILLINOIS MEDICAL JOURNAL

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Membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 1618 Juneway Terrace, Chicago.

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Editorial

DOCTORS DESIRING TO READ PAPERS AT THE STATE MEETING QUALIFY AT ONCE

Members of the Society who are interested in presenting papers before any of the sections at Moline, May 31, June 1, 2, 1927, are requested to write to either the chairman or the secretary of the section in which he is interested, giving the title of the paper and the full address of the author.

It is customary to divide the papers in each section equally between members of the Chicago Medical Society, and the Downstate Societies.

The Committee on Arrangements at Moline has just reported that all sections will meet in the same building, the same that will house the exhibits, registration and information headquarters.

This arrangement will add materially to the interest of the meeting and all efforts are being made to have an unusually large attendance for the 77th annual meeting.

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Louis Ostrom, chairman, Rock Island.

C. F. Yerger, secretary, 4100 West Madison Street, Chicago.

Section on Public Health and Hygiene:

H. V. Gould, chairman, 1214 Berwyn Avenue, Chicago.

A. A. Crooks, secretary, Peoria.

Section on Roentgenology:

E. S. Blaine, chairman, 5 South Wabash Avenue, Chicago.

Harold Swanberg, secretary, Quincy.

It is requested that the Chicago Medical Society members write to the Chicago officers, and the Downstate men get in touch with the other members so that there will be no confusion, and the programs can be arranged in such a manner that the 1927 annual meeting will be one long remembered.

The officers of the five sections of the Illinois State Medical Society are anxious to arrange their respective programs as early as possible. The programs next year will be conducted somewhat differently from those of former years, and should make the meeting more attractive than ever before.

MAKE HOTEL RESERVATIONS EARLY ILLINOIS STATE MEDICAL SOCIETY ANNOUNCEMENTS.

The seventy-seventh annual meeting of the Illinois State Medical Society will be held in Moline, May 31, June 1-2, 1927. In anticipation of one of the largest and best meetings in the history of the society, the committees on arrangements have inaugurated extensive preparations for the meeting and entertainment of the Society.

The committee on hotel accommodations urge that reservations for the meetings be made early.

The hotels have agreed that reservations may be made directly through our Hotel Committee. Those wishing to make reservations will please address Dr. G. D. Hauberg, chairman, Hotel Committee, Moline, Ill., stating hotel preference, etc.

Below will be found a list of the principal hotels in Moline, Rock Island and Davenport:

MOLINE HOTELS

Leclaire Hotel:

200 rooms and 70 apartments. Can accommodate about 400 persons.

Rates—

$3.00 for a single room with tub and shower bath.

$4.50 for a double room with tub and shower bath.

$5.50 for a room with twin beds for two persons.

$8.00 for a room with twin beds for four persons.

$2.50 for a bed in an apartment.

Campbell Hotel:

Can accommodate about 25 persons.

Rates—

$2.00 for room with bath (single).

$3.00 for room with bath (double).

LeClair Hotel, Moline, Ill.

$1.50 for room without bath (single).

$2.50 for room without bath (double).

$1.25 for room with single bed.

$1.00 each for rooms with two full beds, four in room.

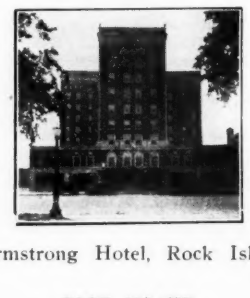
All rooms have hot and cold water, shaving mirror, etc.

Hotel Mayfair:

$1.50 per person, 2 in room, without bath.

$2.00 per person, 2 in room, with bath.

$4.00 for double room.



Fort Armstrong Hotel, Rock Island, Ill.

ROCK ISLAND

Hotel Fort Armstrong:

80 rooms. Can accommodate 160 persons.

Rates—

$2.25, $2.50, $3.00, $3.50, $4.00.

$2.00 per person extra.

New Harper Hotel:
75 rooms available.
Rates—
$2.00 to $2.50 for single room with bath.
$1.50 for single room without bath.
$4.00 to $4.50 for double room with bath.
$2.50 to $3.00 for double room without bath.

Como Hotel:
50 rooms available.
Rates—
$1.75 to $2.50 for single room with bath.
$1.00 to $1.75 for single room without bath.
$2.75 to $4.00 for double room with bath.
$2.00 to $2.50 for double room without bath.

Hotel Harms:
25 rooms available.
Rates—
$1.50 for single room without bath.
$2.00 to $2.50 for single room with bath.
$3.50 to $4.50 for double rooms.
All outside rooms; running hot and cold water.
Rock Island, 10 minutes by auto from convention headquarters; 20 minutes by street car.

DAVENPORT HOTELS

Hotel Blackhawk:
About 100 rooms available.
Rates—
Rooms with lavatory and toilet, $3.50 and $4.00 per day.
Rooms with shower bath, $4.00 and $4.50 per day.
Rooms with tub bath, $5.00, $5.50, $6.00 and $7.00.
The above rates are for two people in a room.
Davenport 15 minutes by auto and 40 minutes by street car.

THE NURSING PROFESSION SHOULD TAKE HEED BEFORE THE "GOOSE THAT LAYS THE GOLDEN EGGS" MEETS AN UNTIMELY DEATH

To Yale University, pioneer in education in this country, must be given a fresh laurel. This university has a school to train nurses.

From this school it seems as if relief might be expected in the nursing system that has become so well nigh impossible for either practitioner or patient to handle. The over-trained nurse has long been a thorn in the side of self-respecting physicians, and the overpaid and underworked nurse is beyond the reach of the great bulk of citizens.

This school may be the wedge with which the present nursing problem may be brought to some sort of compatible balance with existing circumstances as to sick persons, incomes, duties and hire.

Only too often does a doctor meet with the need of a nurse to which the retort courteous from his patient, is like the housewife who, quoting from the *Boston Medical and Surgical Journal* remarked, "But I can't have a nurse, doctor, I'M too sick to look after her."

Only too true is the fact that in many instances the trained nurse has come to regard personal service for her patient as beneath her dignity and below her personal standing. High standards set for nurse-students has had something to do with this. Not all responsibility can be laid there, nor can any one excuse the American spirit of progress and desire for a safeguarded old age, for making of the nursing profession what is really a cutthroat job where the patient is concerned.

Rapidly the high cost of elaborate training is limiting trained nursing to wealthy private patients, in their homes, and to institutions for the sick and convalescent. In fact the entire trend of the overtrained nurse is institutional. If an executive position is possible, so much the better. The personal love of individual care of the sick seems to have gone out in a horse and buggy.

Some middle road must be found for those whose educational qualifications while not admitting of their securing the executive or specialized positions open to the nursing profession, yet after good training will be capable of caring for sick persons under doctor's orders, and who will be willing and contented to do so.

Of this class there are hundreds and hundreds and thousands of willing girls and women. Coming under the classification

"Who gives himself with his gift feeds three,
Himself and the humble beggar and Me,"

their work will be the plain and requisite care of the sick.

It begins to look as if the Yale School for Nurses were going to be the lifeline. True the tendency of this school is to abolish the apprentice system and to teach nursing in the way that

pioneer medicine was taught—mostly by books and by lectures. The Massachusetts General hospital and the Childrens' Hospital co-operate with Simmons college in an arrangement that may be of service elsewhere. For those who desire public health nursing, or specialized types of institutional work a five-year course is given. It has been suggested that by concentration on a practical nursing course of three years or less, and on the theoretical aspects in the lengthier course that perhaps the way would be made clear to fill the need for nurses in the home, in the hospitals and in the welfare agencies and research bureaus and laboratories.

Leaders in the nursing profession should take heed before the "goose that lays the golden eggs" meets an untimely death. Conditions are intolerable in the way of having some one take care of those who are ill at a price that the sick can pay, instead of at the present prohibitive rate in Illinois and in many other states. The school at Yale University is vivid writing on the wall. What this institution has done, others are going to do. Being affiliated with an institution of the high standard of Yale University will leave the nurses trained there free from the criticism attaching to the "mail-order nurse."

And here is where public opinion and the bulk of the medical profession will stand to the last ditch by capable, willing, careful women who are not afraid to do what a plain nurse ought to do. Americans have a mania for organizing and often organization out does itself. This would seem to be about what has happened with the nursing profession. Keeping up the standard is an excellent motto, both by current members of an organization or by fresh applicants. But when an article becomes beyond the reach of those whom it is destined to serve then it is time to reconstruct. When the automobile was a rich man's toy,—as figuratively speaking the trained nurse is today, when it costs upwards of $100 weekly for an all time nurse—two women working at $50 each—it was a machine to be regarded with awe and wonder and envy, but not purchase. Along came Henry Ford and put a serviceable automobile on the market at a price within the income of almost the entire American citizenry. The comparison is too obvious to need comment.

THE TRAINED NURSE PROBLEM

Immediate steps must be taken to clear up the nursing situation so that efficient care in illness may be available for persons who are neither plutocrats nor paupers.

As matters stand now plutocrats can afford to hire trained nurses who are the most luxurious of appurtenances in a sick room. Paupers seek public institutions where at the expense of the tax-payers nursing service can be secured.

It is unbelievable the extent to which the trained nurse has pushed her advantage in every conceivable fashion. There is no monopoly existing that has the public more securely by the throat.

Raising the standard of entrance requirements has made the trained nurse an almost priceless gem. Twelve hours per diem is the maximum for which a trained nurse will stay in the house with a patient and fifty dollars a week the minimum hire. In addition she must be fed, lodged and to a certain extent waited upon. Especially in cities is the lodging question a matter of moment. Housing space is at a premium and food no small item.

Where nursing attendance is considered, the average citizen, the bulk of the taxpaying body, is to be colloquial "Up a tree." Neither in a hospital nor in his home can he afford this necessary adjunct to convalescence for more than two weeks.

The doctor is a mere collector of pittances in his fees by comparison with the trained nurse. A great deal of the doctor's service is purely philanthropic, and few physicians worthy of the name know the meaning of "hours" except as a continuity.

Out of the twelve hours service that a trained nurse consents to give often she must have her two hours "relief." Rarely, especially when she is on private cases does she have more than four and on an average about two hours a day when she has to work.

There was never anything to compare with this in the world. Weighed in the same scales public utilities are generous benefactors, and the whole scheme is enough to make Florence Nightingale turn in her grave.

The *Journal of the A. M. A.* discussing this

subject in a recent editorial remarked "A report published in the *Chicago News* indicates that the Illinois State Association of Nurses, first district, has just put into effect a new policy under which its members are refusing to accept twenty-four hour duty when called on as private nurses by patients in public hospitals. The demand means that a person requiring continuous attendance must employ two nurses where formerly he paid only one. For at least five years there has been increasing uneasiness among the medical profession and the public over the changing attitude of the nurse toward her vocation and her labor. What was formerly distinctly an auxiliary in the care of the sick has been split into a dozen professions and specialties and with increasing attention to management and decreasing attention to individual service. . . .

Too few nurses who enter training school have their thoughts focused on the idea of personal service to ailing humanity.

Rather it would seem they are stimulated to the securing a dignified position in some specialty. Obviously by this development, the care of the individual sick person has suffered. The possible lack of this care is responsible for the unrest that pervades medical and lay circles in the matter of nursing. At the last annual session of the A. M. A., the house of delegates particularly requested the board of trustees to look into the nursing situation and to appoint a special committee for the purpose. Granted that there are needs for such highly specialized nursing administration as has been mentioned, the needs of the individual sick are the primary ones. Apparently nurses are being trained in technical matters to a point at which dignity suffers when they are asked to undergo the tribulations of personal service. The modification of curriculums should tend to the development of more nurses who will consider the care of the sick their highest ideal."

COLLECTING DOCTORS' ACCOUNTS

Under date of November 7, 1925, the *Journal of the American Medical Association*, on page 30, made the following comment:

"Those outstanding accounts may be partly or wholly convertible into cash, Doctor, if you can refer to The Medical Credit Association. Accounts are handled especially for physicians with courtesy and promptness."

SCIENTIFIC SERVICE COMMITTEE REPORTS PROGRESS

Since the last issue of the ILLINOIS MEDICAL JOURNAL its Scientific Committee reports progress as follows:

On Friday, January 14, Drs. Heinemeyer of Rockford, D. D. Smith of Decatur, W. C. Danforth of Evanston and David S. Hillis of Chicago met with the Chairman to discuss the work in obstetrics. Dr. N. Sproat Heaney was unable to be present but sent a letter outlining his views. This seemed to coincide with the opinion of the men present and was accepted as the basis for this work. An outline of subjects will be prepared by these men and forwarded to county secretaries within a short time.

Dr. Carl A. Hedblom, Professor of Surgery, University of Illinois, College of Medicine, has compiled a list of subjects and has a number of men from that institution that are willing to cooperate with this committee in its work with county medical societies. This list will be completed within a short time.

Dr. James G. Carr of Chicago and S. E. Munson of Springfield will give a clinic on cardio-vascular disease before the DeWitt County Medical Society at Clinton, February 11.

Dr. John B. Moore of Benton talked on "Fractures" before the Union County Medical Society at Anna, January 13.

Dr. Emmet Keating of Chicago addressed the Franklin County Medical Society at Benton, January 27. His subject was "Periodic Health Examinations." That this is a live subject with that society was evidenced by their large attendance.

The dentists are meeting with the Union County Society on February 10 to discuss "Focal Infections and Their Relation to Systemic Disease." Dr. Lewis W. Schultz will address the meeting. Dr. Schultz comes from the faculty of the U. of I. College of Medicine and is one of the speakers bureau referred to above.

JAMES H. HUTTON,
Chairman.

FELLOWSHIPS IN PSYCHIARTY.

January 6, 1927.

Fellowships for training in extramural psychiatry are again available to a limited number of qualified applicants, announces the National Committee for Mental Hygiene, in a recent statement. These fellowships are made possible by a renewal, from the Rockefeller Foundation, for a second period of three years, of its appropriation of $40,000 to the National Committee for Mental Hygiene which administers the fund and directs the training of fellows.

These fellowships are designed to provide special training for physicians who have had previous hospital training in psychiatry but who wish to prepare themselves for extramural work in child guidance, delinquency, education, dependency and industry.

Fellowships are open to physicians under thirty-five years of age, who are graduates of Grade A medical schools and have had at least one year of training in a hospital for mental disease, maintaining satisfactory standards of clinical work and instruction. A longer period of mental hospital training is desirable.

A different type of fellowship is also available for the training of social workers in psychiatric social work. Applicants for fellowships in psychiatric social work must hold a collegiate degree, be under thirty years of age and be free to devote themselves to a period of professional work upon completion of their training.

Applications for either type of fellowship are now being received at the National Committee for Mental Hygiene. Blanks for this purpose may be obtained by addressing Dr. Frankwood E. Williams, 370 Seventh Avenue, New York City.

TO THE MEMBERS OF THE FIFTY-FIFTH GENERAL ASSEMBLY ADDRESSED.

ILLINOIS STATE MEDICAL SOCIETY LEGISLATIVE COMMITTEE.

Among the many problems that you will be called upon to decide in the next legislature are those which pertain to the public health.

In each session of the legislature, for a great many years, there have been groups of drugless healers who attempt to gain recognition by special laws to favor their particular branch of the healing art. The fifty-third general assembly devoted a great deal of time to this perplexing problem, and, after a thorough deliberation, a special committee in the house and senate drew up a measure which passed by a large majority, in fact, in the senate there was a negative vote, and in the house it carried by a big majority.

The bill was attacked by two different drugless groups, the chiropractors and the naprapaths. The cases went to the supreme court and in both instances the court held the act valid and declared it was a safeguard to the public health, and that the minimum requirements were not too severe.

The administrative code of the state makes provisions for the drugless healers to have proper representation on the board of medical examiners. There is now attached to the board a licensed osteopath and a licensed chiropractor, who examine the applicants. Properly qualified chiropractors are appearing before the board at each of the examinations and many of them have passed and have been duly licensed.

The National School of Chiropractic in Chicago, the largest school in Illinois, teaching that particular branch of the healing art, has complied with the requirements in the law and is in good standing, and its graduates are appearing before the board of examiners and those successful in passing the examination are being licensed.

The Palmer School of Chiropractic, located at Davenport, Iowa, refuses to bring their curriculum up to the requirements of the Illinois law. The head of that school refuses to admit that a high school education is necessary before a college course, and also gives a course of instruction in his professional school very much less than the requirements of the Medical Practice Act, which have been held necessary by the supreme court of this state on two occasions. These facts can be verified by the director of registration and education at Springfield.

The records of the department of education and registration disclose the fact that among the seventeen or eighteen hundred drugless healers licensed in the state of Illinois there are practitioners of osteopathy, chiropractic, naprapathy, vitapathy, neuropathy, hydrotherapy, mechanotherapy, physcultopathy, magnetic healing and naturopathy. Does it look reasonable that the

chiropractor should have a special law and a special board when the other drugless healers are not permitted to have a like privilege? Even if a separate board was provided for the above ten groups this would only be a beginning because there are nearly thirty well defined groups of drugless healers all with different names and with different ideas of treatment. As fast as a new group would come into Illinois and seek a special board it would be only consistent to grant it.

The Medical Practice Act of Illinois does not discriminate against any method of healing. It does not take into account the question of treatment or healing at all. It simply says that no man shall assume the grave responsibility of caring for the sick until he is familiar with the human body in health and in disease, and knows its structure and its functions. Every man who undertakes to practice the healing art is presumed to know something about the anatomy (structure of the human body), physiology (functions of the body), the chemical compositions of the body fluids and tissues, bacteriology (the study of the small living organisms with which we are constantly in contact) and hygiene (the laws of sanitation and right living). The state assumes that without such fundamental knowledge, which is claimed in common by all so-called schools, no man should be allowed to assume the responsibility of caring for the sick. When a man has such knowledge he should be and is allowed under the state law to use any plan or system of healing that his judgment and conscience may dictate. The Illinois law makes one common standard for all who would treat the sick. No such thing as systems or schools of medicine or methods of healing are recognized.

What the chiropractor wants to do is to set up his own standards. He wants to disregard the fundamentals common to all schools and systems. He wants to reverse the state's attitude on the question of treatment, by adopting the plan of securing state recognition in the matter of treatment alone.

Treatment is a matter of opinion and follows as a natural sequence on knowledge of what it is proposed to treat. Men have always differed on the subject of treatment. It will never be possible to establish by law any system of treatment or to favor any school of medicine representing a special or exclusive "cure-all" plan of treatment. It is possible to establish minimum requirements in general education and in knowledge of the fundamentals common to all schools.

No man ignorant of common standards accepted by all schools should be allowed to even give advice to sick people or to treat anything. It is manifestly impossible to give good advice on a subject about which he knows nothing and it is manifestly impossible for him to separate cases which he proposes to treat from the case he does not propose to treat. The only fault the chiropractor can find with the Medical Practice Act is that the law requires him to have a general education, and then pass an examination on such branches as anatomy, physiology, chemistry, bacteriology and hygiene. There never has been and never will be an allopathic anatomy, a homopathic physiology, and eclectic chemistry, and osteopathic bacteriology or a physio-medical hygiene. Such would be as absurd as a baptist algebra, a methodist geography or a presbyterian grammar.

The question that the legislator must necessarily decide is not one favoring medical men, chiropractors or any other group but the big question as to protecting the public's health against men incompetent to diagnose disease. It is just as important to know what not to do as it is to treat any disease condition. It is probably to be admitted that the chiropractor does no particular harm on cases that are not of a serious nature but the efficacy of his therapy is not the debatable question at this time. It is merely one of minimum education and the Medical Practice Act of 1923 which has been upheld as being constitutional by the supreme court of Illinois, certainly has the most liberal requirements for the durgless healer and for the chiropractors. For the chiropractor to claim that only chiropractors are qualified to examine their applicants in anatomy, physiology, etc., is an insult to the intelligence of the members of the general assembly. Treatment may differ but the human body does not and the mere coining of euphonious names to certain anatomical parts does not change the basic understanding of the human body.

We sincerely trust that you will give this interesting subject careful consideration before pledging your vote for or against any proposed legislation relative to the public health.

JOHN R. NEAL,
Chairman Legislative Committee,
Illinois State Medical Society.

SPIES SWARM OVER THE LAND LIKE THE LICE OF EGYPT, DEVOURING THE SUBSTANCE OF THE PEOPLE, PRYING INTO THEIR PRIVATE AFFAIRS, REGULATING THEIR TRADE AND BUSINESS

We have repeatedly in the Journal called attention to the present trend of the times for congress and state legislators to tell physicians how, when and under what circumstances they shall treat the sick, even attempting to regulate the remedies and dosage that doctors are permitted to prescribe.

We have stated times without number that there are too many laws and too little respect for those we have. This fact is becoming recognized generally by our statesmen and thinking people. In this connection it is wholesome to read the comments of Senator James Reed of Missouri in his address before the National Boot & Shoe Manufacturers' Association January 20th. We quote:

"The return to the states of 'their natural and just authority' so as to bring the federal government 'back to its original simplicity'," is urged by Senator Reed.

PURGE NATION OF PLAGUE OF SPIES. GET THE UNITED STATES BACK TO CONSTITUTION

Pleading for the elimination of "hordes of officials, tax gatherers, snoopers, and spies," who "swarm over the land like the lice of Egypt, devouring the substance of the people," Senator Reed (Dem., Mo.) tonight advocated a determined reversion to the constitutional principles of federated government and the re-establishment of human liberty as the high aim of political activity.

Further, the Senator said the difficulties of government would be greatly simplified "if we could always keep in mind that each human being is endowed by his Creator with the absolute right to live his own life, choose his own occupation, select his own habitation, eat and drink whatsoever he chooses, and, above everything else, to think as his brain dictates, to fully express his opinions, to adopt his own creed, and worship according to his own conscience, without fear or restraint, without proscription, either social or political."

To that principle should be added another—that the sole business of government is the protection of these rights—Mr. Reed declared, adding:

"Such was the doctrine of the fathers of the republic.

"How have we kept the faith?

"With congress desiring to have its will, regardless of the constitution, and with the courts indulging the presumption that congress was defending the constitution, the charter of our liberties was ground as between two millstones.

"A saturnalia of federal law making began. Every legislature followed suit. When the first heat of the race was over and the legislative lords paused to take breath, the old maxim, 'that people is governed best which is governed least,' had been buried under a mass of statutes which sought to control, regulate, or coerce almost every activity of man.

"To enforce these innumerable laws, regulations and rules, a horde of officials, tax gatherers, snoopers, and spies swarm over the land like the lice of Egypt, devouring the substance of the people, prying into their private affairs, regulating their trade and business, and then poisoning their supply of alcohol.

A SWORD OF OPPRESSION

"What wonder that the average man has come to regard the law as a sword of oppression, rather than a shield of protection?

"Is not the crying need of the hour the disbandment of useless boards, the repeal of unnecessary laws, the return to the states of their natural and just authority, to the end that we may bring the federal government back to its original simplicity?"

Senator Reed reiterated his hostility to the league of nations and the world court, and declared that at the Washington arms conference the United States "surrendered the dominion of the seas then within our grasp."

Correspondence

LEGISLATIVE COMMITTEEMEN ATTENTION

Springfield, Ill., January 27, 1927.

To the Legislative Committeemen:

The 55th General Assembly is now organized, Committee appointments are being completed, and the actual work of the Assembly will soon be started.

We will follow the same plan of organization in the Illinois State Medical Society that has been successful for the last several sessions of the Legislature.

Councilors will supervise all legislative matters in their respective districts. They have devoted a great deal of time in the last two months in organizing the local committees.

Your Legislative Committee will be directed in all its activities by your Council. There are a number of districts, however, that are not complete, and it is imperative that the list of local committees reach this office within the next ten days or two weeks to be fully effective.

A Bulletin will be issued as frequently as necessity warrants, but individual matters will be taken up direct with local Committeemen. As long as bills which we oppose are in committee, obviously, it is unnecessary to call upon the entire State for help. If a bill is in the Judiciary Committee of the House, only districts from which its members come are appealed to for help, as it is quite apparent that physicians living in other Senatorial Districts have a little effect upon members in the legislature, but as a rule legislators are very anxious to confer with their own constituents, or in other words, with the ones who have the power to return them to political positions. The law-makers are home every week-end, and if the physicians will make an effort to see them personally regarding bills which we are interested in, a great amount of good may be done with very little effort. It is a well known fact that large lobbies of physicians are not effective by coming to Springfield, but of course it would be impossible for us to carry out plans of the Society without cooperation in every district at the week-ends.

More than forty bills were introduced during the last legislature, which it was necessary for us to oppose. Not a single bill became a law which was opposed by the Council of the Illinois State Medical Society. All of the bills referred to made an effort to lower the educational requirements of those who desire to treat human ailments. As in the past, all bills of interest to medical men will be reviewed in the Bulletins, and any member interested in any particular pill may receive same without cost by writing the Chairman of the Legislative Committee at Springfield.

Yours very truly,

J. R. NEAL,
Chairman Legislative Committee.

VISUAL DEFECTS.

DEPARTMENT OF HEALTH.
CITY OF CHICAGO.
Herman N. Bundesen, M. D.,
Commissioner of Health.

November 24, 1926

Dr. Robert H. Buck,
Secretary, Chicago Ophthalmological Society.
30 North Michigan Avenue,
Chicago, Illinois.

My dear Dr. Buck:

The Department of Health is extremely interested in the proper correction of visual defects in children, as you know. Of late we have been receiving complaints from optometrists to the effect that we are discriminating against them by advising that the use of a mydriatic is necessary to refract properly

Will you kindly give us your opinion on this matter and reasons therefor?

Thanking you for your cooperation, I am,

Very respectfully,
(Signed) HERMAN N. BUNDESEN.
Commissioner of Health.

Originated by
E. A. Schlageter, M. D.,
Acting Chief, Bureau of Child Welfare.

THE CHICAGO OPHTHALMOLOGICAL SOCIETY.
CHICAGO, U. S. A.

Dr. Edwin J. Gardiner, President — Dr. Robert H. Buck, Secretary

December 4, 1926.

Dr. Herman N. Bundesen,
Commissioner of Health,
Chicago, Ill.

My dear Dr. Bundesen:

Replying to your letter of November 24, I am personally unqualifiedly of the opinion that proper refraction of the eyes of a child requires

the use of a cycloplegic, and that it is absolutely impossible by any other means known to the ophthalmological science.

The condition, which it is our aim to relieve, is the demand upon the ciliary muscle resulting from the necessity of holding an abnormal crystalline lens in focus. Such condition is unnatural and can be relieved by supplementing the crystalline lens with a lens of such strength that the combination of lenses will result in the focusing of parallel rays of light upon the retina without muscular effort.

It then becomes prerequisite to the determination of the additional lens strength required, that the crystalline lens be in a state of rest when the measurement is made. Obviously, this can only be done by first paralyzing the ciliary muscles.

Since the amplitude of accommodation, i. e., the muscular strength available for focusing the crystalline lens, is much greater in childhood than in maturity, this unnatural effort can largely overcome any deficiency in lens strength for a short period of time required for a manifest examination; hence the paralyzing of the ciliary muscle is imperative in childhood.

I trust this short explanation will give you a fair idea of the situation, but I will bring your letter before the Chicago Ophthalmological Society at the next meeting on December 20, with a request for action.

Thanking you for your courtesy in consulting us in this matter, I am

Yours very truly,
(Signed) ROBERT H. BUCK,
Secretary.

THE CHICAGO OPHTHALMOLOGICAL SOCIETY.
CHICAGO, U. S. A.

Dr. Edwin J. Gardiner, President — Dr. Robert H. Buck, Secretary

December 22, 1926.

Dr. E. K. Findlay,
30 N. Michigan Avenue,
Chicago, Ill.
My dear Dr. Findlay:

At the meeting of the Chicago Ophthalmological Society on December 20, it was moved that a committee consisting of the five most recent ex-presidents be appointed to formulate an answer to the enclosed letter.

As the senior of this group, you will be the chairman, the other members being:

DR. FRANCIS LANE,
DR. ROBERT VON DER HEYDT,
DR. J. B. LORING,
DR. CHARLES P. SMALL.

Yours very truly,
Chicago, January 10, 1927.

Dr. Robert Buck, Secretary,
Chicago Ophthalmological Society,
30 North Michigan Avenue,
Chicago.
Dear Doctor Buck:

In conformity with the motion from the Chicago Ophthalmological Society, your committee begs leave to submit the following unanimous report regarding the necessity of using a mydriatic or cycloplegic in the examination of the eyes of school children suffering from visual defects:

A mydriatic or cycloplegic is absolutely necessary in examining the eyes of school children suffering from visual defects. The dilatation of the pupil permits a complete inspection of the interior of the eye, and frequently a cause of poor vision can be ascertained that would be impossible in the undilated pupil. Diseases of the eye that are progressive in nature are so discovered and immediate treatment in such cases can be instituted for the protection of vision. Some general disease or infection may manifest itself at an early stage in the interior of the eye, and its early recognition may prove of vital importance to the child. Only by putting the focusing or accommodating power of the eye at rest temporarily with a cycloplegic can the proper glasses for children be determined, and by this method alone can a scientifically correct lens be prescribed.

The use of atropin or its derivatives is not only absolutely without danger to the child's eyes, but under intelligent supervision its use has proven of untold benefit in preventing blindness.

The committee desires to express its appreciation to the Chicago Commissioner of Health, Dr. Bundesen, for the opportunity of replying to the inquiry regarding the use of mydriatics, and heartily agrees with his Department as to the necessity for the careful examination of the eyes of school children.

Respectfully submitted,

(Signed) FRANCIS LANE,
CHARLES P. SMALL,
ROBERT VON DER HEYDT,
J. BROWN LORING,
EPHRAIM K. FINDLAY,
Chairman.

POST GRADUATE STUDIES IN BERLIN

International medical courses for postgraduate studies will be held at Berlin in the months of March and April, 1927. They will be arranged by combined efforts of the Faculty of medicine of the University of Berlin, the organization of the Kaiserin Friedrich-Haus and the association of University-lecturers for medical vacation-lecturers at Berlin.

1. Course of general survey on "Progress of the entire medicine with special consideration of the latest therapeutics." (1.-12. March).

2. Course of special survey on the range "Diseases of the heart, the kidney and the vessels." (14.-23. March).

3. Course of survey on the domain "Scientific knowledge about rays." (24.-31. March).

4. Single courses on Special ranges out of all branches of medicine, partly lasting a fortnight (14.-26. March), partly lasting four weeks (1.-26. March). These courses are combined with practical laboratory work and demonstrations of patients.

5. Practical course of "Diagnostical and therapeutical technics" in the sick-rooms and laboratories of the municipal infirmary "Am Urban" (1.-14. April).

Besides these courses there will be opportunity for clinical and laboratory work in the intern ships of the important hospitals of Berlin, also for pathologic anatomical work. This work will be arranged for according to individual wishes by the undersigned office.

All nearer information may be obtained from
Kaiserin Friedrich-Haus,
Berlin NW 6, Luisenplatz 2-4.

ACIDOSIS, TREMBLES AND MILKSICKNESS

James Fitton Couch, Bureau of Animal Industry, in *Science*, November 5, 1926, says:

During a biochemical study of the course of sickness in animals poisoned by richweed (*Eupatorium urticaefolium*, Reichard) or by the rayless goldenrod (*Aplopappus heterophyllus*, (A. Gray) Blake, formerly known as *Isocoma wrightii*, Rydb.), it was observed that excretion of acetone by the lungs and kidneys is a constant symptom of poisoning. Some twenty-four hours after the first symptoms of trembling appear, sick animals begin to excrete large quantities of acetone. The urine becomes strongly acid and reeks of this ketone. It seldom contains albumen, and sugar was observed in two cases only. B-oxybutyric acid and acetoacetic acid have not been found in the urines examined.

EXPERIMENTAL RESULTS

Fifteen cases were studied. Of these, five were sheep poisoned by richweed, seven were sheep poisoned by rayless goldenrod, and three were cattle, one cow and two calves, also poisoned by rayless goldenrod.

All the richweed cases excreted acetone by lungs and kidneys. A quantitative determination of the urinary acetone in one case showed the presence of 24.32 mg of acetone per 100 cc. In two cases samples of blood were also obtained, and these were positive to tests for acetone.

Of the animals poisoned by the rayless goldenrod, acetone was demonstrated in the urine of six sheep that also carried the odor of this ketone on the expired air. In one case a quantitative determination of urinary acetone showed the presence of 34.35 mg per 100 cc. The seventh case showed no symptoms of trembles and probably was not poisoned. At no time did this sheep excrete acetone nor was the urine ever acid. The urine of the three cattle was collected at autopsy and in one case we were fortunate enough to obtain a good sample of blood. All the samples contained acetone.

Blood sugar determinations were made in several cases and showed a large increase in the concentration of glucose. One animal poisoned by rayless goldenrod had a blood sugar concentration of 0.1472 gram per 100 cc; another, poisoned by richweed, had 0.1680 gram per 100 cc. The normal figures for these animals were 0.090 to 0.100 gram per 100 cc.

SUMMARY OF FINDINGS

The findings indicate that animals poisoned by these two plants suffer from an acidosis. The fact that excretion of acetone does not begin until after the onset of the characteristic trembling—whence the common name "trembles" for the disease—suggests that the ketogenesis may be a secondary effect of the intoxication. This is supported by the fact that common remedies for acidosis do not appear to alter the course of the disease.

It is probable that the toxic principles of these two plants are excreted in the milk of lactating animals. The suckling young of animals feeding on these plants may be poisoned and exhibit the characteristic symptoms, such as trembles and acidosis. Consequently, human beings who drink milk or eat butter obtained from cows that have grazed on either of these plants are in danger of being poisoned. Cases of this sort are not rare in districts where the plants are abundant. "Milksickness," as the human disease is termed, occurs especially in the late summer and autumn at

a time when trembles in cattle and sheep is also prevalent. In human cases the odor of acetone has been constantly remarked and is considered a diagnostic symptom. Dr. W. E. Walsh, of Morris, Illinois,[1] diagnosed the human disease as an acidosis and recommended the use of sodium bicarbonate as a remedy. The present study supplements this diagnosis with a demonstration that acidosis is present in the cattle disease also.

[1] *Illinois Med. J.*, n. s., 15, 422-5, 1909.

"BY THEIR FRUITS YE SHALL KNOW THEM"

The Sheppard-Towner Maternity (Birth-Control) Bill has been in operation five years and twenty major States, with a population above the average, have been carrying the burden for 28 minor, parasitic States. New York pays 25 cents of every dollar of Internal Revenue, which means about $400,000, under this Bill for the privilege of spending $155,444 of its own money under the direction of Miss Abbott of the Children's Bureau of the Federal Department of Labor! "Whaddayamean, Labor! Parturition?" "Naw,—Unions!" Wyoming's taxpayers chip in $8,596—and get $18,556. Parasitic? Sure! American? Well—hardly!

That's only money waste. During the past five years of operation of that Bill, our birth rate has dropped 2.4 per 1,000 of population. That means 250,000 babies per annum who will never be American citizens. "Now, Doctor, have a heart; why blame this on the Sheppard-Towner Bill?" Well, the public health reports from Washington tell us that the State of Montana has the lowest birth rate and the highest septicemic rate in the Nation—and the Bothersome Berties and the Meddlesome Matties of the Children's Bureau have been carrying on an intensive campaign in that State for the past five years, so—"laugh that off" if you can.

We who fought the enactment of that bill foresaw all this in 1921 because, you see, we did not merely see page 60 of the Children's Bureau Publication No. 57, but we observed and studied their statistics thereon and we found that away back in the late 80's, they started that Compulsory Health Insurance with maternity aid in Germany, and, after all those years, the best they can do with 250,000 compulsorily insured women, subject to the visitations of those Meddlesome Matties with the whispered word of how to be childless though married, is a birth rate of 4.2 per cent. (parts in a hundred, mind you) while 25,000 voluntarily insured women, not subject to those visitations, show a birth rate of 42.8 per cent. (10 times);—but—the 250,000 show an abortion rate of 17.2 per cent. while the 25,000 show an abortion rate of only 2.6 per cent (one-seventh)—and—for the enlightenment of those who are deceived by the "saving-thousands-of-mothers-through-the-beneficent-operation-of - this - Maternity-Aid" propaganda, the deaths of women, in childbirth, from "diseases complicating pregnancy"; heart, lungs etc., etc., was 10.2 per cent. in the 250,000 and 10.0 per cent. in the 25,000. What price Death-Prevention: in Germany; here at home?

That Children's Bureau Publication No. 57 was written by a man named Harris of the American (?) Association for Labor Legislation, (alias, Compulsory Health Insurance and Annual Re-Registration of Doctors); that book, "Maternity Systems in Other Countries" quotes generously and approvingly the teachings of the First Commissar of Lenin and Trotzky's Russian Soviet Department of Welfare, Mme. Alexandra Kollontai, now Soviet Minister to Mexico, and recently barred from this country by Secretary of State Kellog, not, as Senator Borah says, because he "feared for the integrity of our American Institutions, but because he reverenced them." And an American Congress passed that Bill! And an American Congress is now asked to perpetuate it! And the American people turn on their radios and listen to jazz and would probably whirl the dials if you or I were to begin to talk on the viciousness of this public policy of putting the financial 'prop' in Soviet propaganda for the limitation of population by Birth-Control, as voted by the League of Women Voters, recently, in hopeful anticipation of a complaisant Congress re-enacting the Sheppard-Towner Maternity (Birth-Control) Act with luscious appropriations.

Where is this loss of 250,000 American babies? Not in the upper range of Society, the Intelligentsia, because there, a Pekinese Pup or a Chow Dog has long enjoyed the creature comforts which belong to His Highness, The Baby. Not in the lower order, the Proletariat, who will continue to use his women who rejoice in large families and take shame if they are childless; but—the children of that lower range, graduating into the upper range, through the broad opportunity afforded by our generous educational system, and—the Middle Range, the Bourgeoisie, itself "keeping up with the Joneses" is rapidly breaking down, through birth-control, the only bar Society has between the oppression of the Aristocracy (which France suffered) and the domination of the Proletariat (which has made Russia a "thing" among the Nations of the Earth). One does not need to be a prophet to forecast the result if the American People do not wake up; the mathematics of the 6-B Grammar Grade makes the domination of numbers spell Proletarianism.

Lord love us! How many well-educated American People will smile indulgently at this explosion and say "Pshaw! they can't do that—we would never stand for it." We said that about Prohibition and rolled over and went to sleep; when we awoke the Profession of Medicine was a joke and Bootlegging a profession and the United States Supreme Court in its "pint-per-ten-days" decision admits its helplessness to control this police power of the State which invests the rule of a Bureau with the force and effect of Statute as the Sheppard-Towner Maternity (Birth-Control) Bill did, does and will continue to do unless the People stop it.—Dr. J. J. A. O'Reilly in Pharmacal Advance.

THE USE OF ALCOHOL IN MEDICINE

(Willcox, Charles—*Virginia Medical Monthly*, 53: 382-387, September, 1926)

The use of alcohol is as old as man and for a time was considered a potent cure-all. The presence of fusel oil in liquors has been feared as dangerous by

some, but the amount of the oil in good liquors is so small that it can be ignored from a therapeutic standpoint; for instance, one analysis of 92 liters of Cognac gave 206 grams fusel oil or about one fifth of 1 per cent. The irritating effects and disagreeable taste of freshly distilled liquors are due not to fusel oil but to some volatile substances, principally furfurol, which, after prolonged contact with the charred interior of barrels, forms esters to which is due the mellowness of old whiskey and brandy.

Alcohol is a necessity to the drug business as it is the only known agent that will extract the valuable and potent medicinal properties of the vegetable kingdom, leaving behind the inert, valueless mass. It is not only an invaluable extractor, crystallizer and solvent, but it is an ideal preservative, and is a basic agent in making ether.

Alcohol should not be prescribed as a placebo for robust young adults unless conditions are alarming; for reformed drunkards except in indicated cases; for epileptics; in cases of acute gastritis, hepatitis, or nephritis, as a rule. Alcohol should be prescribed with the judgment used in administering digitalis, having in mind its easily acquired habit and the ultimate depressing effects of large doses.

Alcohol is an excellent sterilizing agent for every delicate instrument which might be injured by other methods. A 60 per cent. solution is best.

It is an efficient gargle, but a weak solution of tincture of iodine is perhaps as good and is less irritating.

It is most soothing and beneficial as a "rub" and is an excellent preventive of bedsores.

The internal use of alcohol is by far the most important. Its absorption from the healthy stomach is rapid, occurring in from one-half to two hours if the stomach is empty and the alcohol is in concentrated form. It enters the blood stream unchanged and is the only food absorbed unchanged from the intestinal tract. It is rapidly oxidized, only about 2 per cent. of the ordinary dose being excreted by the kidneys and lungs. If a large quantity is taken at once, the amount so excreted will not exceed 10 per cent. It has a high caloric value, about 80 per cent. of that of fat.

Alcohol has no effect on the temperature save by its causing increased radiation by virtue of dilating the peripheral vessels. Its effect on digestion is due to an increase in gastric secretion, which is to some extent counteracted by its inhibitory action on the gastric ferments.

Good brandy is especially helpful in relieving flatulence. Alcoholic therapy at meal time will greatly benefit some feeble old men and women who have little appetite, cold skins and "atonic dyspepsia."

Alcohol has a well defined role in treating infants and children. Brandy in cases of collapse following summer diarrheas acts not only as an evanescent but as an easily and rapidly digested food, supplying by its rapid oxidation the energy and heat in the pneumonias of children.

The author had gratifying results from the administration of alcohol in cases of Asiatic cholera.

Aside from its mental effect, alcohol is not especially beneficial in curing the poison of snake bites.

In selected cases of pneumonia, alcohol is invaluable; in some, occurring in alcoholics, it is mandatory. In those with extreme depression, with a feeble heart, low muttering delirium, brown dry tongue and distended abdomen, alcohol given in large amounts over a period of several days has saved many lives. The heart improves, the delirium gives way to a comparatively calm restfulness and optimism, and from a rapidly sinking maniac, the patient is transformed to a more rational being. Typhoid fever cases receiving alcohol improved. Generally, it is beneficial in septic cases, surgical as well as medical.

Alcohol given in cases of diabetes reduces the dose of insulin by acting as a substitute for part of the carbohydrate of the diet, as it is excellent fuel for the burning of fats. It does not become glycogen, and as it is not ketogenic, does not add to the risk of poisoning the patient.

Alcohol has been of benefit even to athletes in training, being given with dinner.

The nausea of seasickness is often relieved and even cured by alcohol.

The greatest value of alcohol lies in its hypnotic and psychological effect. It gives the patient a feeling of repose and well-being that plays so vital a part in helping him over a crisis or in rendering suffering more bearable. It should be used fearlessly and with the good judgment employed in the use of other drugs.

THE BUSINESS OF MEDICINE

By the business of medicine may be meant the economic return of the medical man's labors. The necessary needful whereby he may support himself and his family, create an estate for their future support in case of his prior death wherewith he may satisfy the various obligations which belong to his personal and professional lives.

That a change has taken place in the relation between the public and the physician is quite as apparent as that change which has come about between the public which owes and those which this public owes. This is not debatable, it is axiomatic. With the advent of the automobile, the tremendous increase in extravagance of the present day, together with the high cost of living and the cost of high living, people have in a very great measure lost their sense of obligation and postpone their just and honest debts as long as possible if not indefinitely. This condition of affairs is evident to anyone who gives credit, and there is no occupation, trade, profession or calling which gives credit as readily as does the medical profession. Admitting that ours is a noble profession and that its first aim is a life of busy usefulness, nevertheless the above considerations must be satisfied if the doctor is to live and die free from debt. These conditions have been met by various changes in the business world. Profits are in some cases so great that those who pay make good the losses for those who do not, and in installment payments a very few

payments begin to show a profit to the merchant. That physicians pay enormous profits for all their necessities is beyond question, and the only explanation possible is that which is equally the case in other lines of merchandise—profiteering.

The cost of physicians' supplies are absurd and unwarrantable and are in a large measure responsible for ever increasing hospital rates, the graft thereby being passed on to the poor and needy. X-ray materials are beyond all sense and reason and simple apparatus placed in the class with instruments of precision. As long, however, as medical men are gullible enough to pay eight dollars and a half for a pair of scissors and two dollars for a knife that can be made and sold at a profit for, shall we say, fifteen cents, this sort of thing will continue. Even a benevolent and protecting government allows a charge of seven dollars a gallon for alcohol which can be made and sold at a profit probably for forty cents. Theoretically, one is led to believe that denatured alcohol is an acceptable substitute, but it cannot be burned in a lamp without smoking, it is harmful to the skin and the profession is deprived of one of the very best antiseptics it ever used. Salvarsan is another valuable remedy from which countless thousands were made by the promoters and with hardly a voice raised in protest.

A new class of professional workers has recently come into being, the salaried physician. He is either absurdly underpaid by the factories which employ him, or else is distinctly overpaid in comparison with the work he has to do. When it is realized that a five thousand dollar salaried position is equal to a ten thousand dollar practice, it will be seen that it is the practitioner who faces high expenses, a variable income and a life of hard labor often bordering upon hardship who bears a far greater burden than the salaried official who need have no equipment, has many of his expenses paid and ample time for study, reflection and recreation, with able assistants, who by the way, often do most of the real work, and who are responsible to no one or perhaps the man higher up.

Whatever progress may have been made in recent years there is in the mind of the rising generation but little thought of responsibility, of fair play or the duty of paying just and honest debts. For debt is in its very essence a crass violation of the spirit of fair play and of the golden rule. Again, with the increase of charity and philanthropy there has been an enormous increase in the pauper class; those who are so mendacious as to depend upon charity for the whole or a part of their needs. The present day system of benevolence makes this very easy. The free clinic, the free almost everything relating to sickness together with public health is not only curtailing in a tremendous degree the sphere of usefulness of the so-called family physician, but is making a race of paupers of our people and lowering their stamina and morale by taking from their sense of responsibility, obligation and pride. The activities of our school, district and industrial nurses by guiding cases into selected channels and by assuming responsibility which they should not assume is, in certain localities, a menace to the independence of those who should not accept charity and is furthermore much the practice of medicine as can be. It would be easy to multiply instances of interference with physician's orders by nurses, of the practice of medicine and surgery, of the urging of charity cases into certain professional hands, of the abuse of charity in our hospitals, and the recommendation of certain specialists by various authorities.

Is anything being done to correct these abuses? There is not. They are on the increase, as any busy physician will testify.

Another abuse to which attention should be called is the taking, at greatly reduced rates, of radiographs for the medical profession. The fault here is twofold, in the physician who sends his case to the hospital, and in the hospital which does the work. Many of these cases can easily afford the usual fees. No case should be admitted to a hospital x-ray laboratory which has not applied for hospital care in the usual way, through the house or out-patient.

Now nothing in this should be so construed as to belittle the need of worthy and deserved charity, or the need of relief of the truly poor, but just glance over the benches of our out-patient departments and see the fur coats, go into the wards and see the laces, hunt up the homes and see the autos and radios and see how much of it is really needed and deserved.—*Rhode Island Medical Journal.*

CHEWING-GUM AFTER TONSILLECTOMY

In a recent number of the *Therapeutic Gazette*, Dr. William H. Spencer, of Philadelphia, draws a somewhat lurid picture of the septic condition of the throat after tonsillectomy, and of the systemic absorption of toxins from the "putrefying mass" which covers the wounds. He is scornful on the subject of gargles, though he does not mention the probability that they do not reach the tonsillar fossæ at all, and it would seem that he has no experience of spraying or syringing the throat in this condition. But he is an enthusiastic advocate of the use of chewing gum after operation, and states that "the throats of tonsillectomized individuals using chewing-gum as an after-treatment do not become infected. Secondary hemorrhage is less frequent."

"Healing is more rapid. A full diet being taken, resistance of the individuals is maintained, little or no weight is lost, and no post,tonsillectomy recuperation period is needed. Chewing stimulates the secretion of saliva, which, being swallowed, laves constantly the wounded surfaces and lubricates the pharyngeal mucosa. The attrition of swallowing keeps down the membrane formation to the minimum, so that the usual white patches covering the tonsillar fossæ, which have often been mistaken for diphtheric membranes, are in some cases entirely absent."

Knowing that they will at least not be deprived of their chewing-gum, many members of the rising generation who may be willing to abstain from other things will be less reluctant to have their tonsils removed.

WHEN IS SYPHILIS CURED?

Adequate Treatment for Hereditary Lues

Dr. Frank S. Schoonover of Fort Worth in Texas Interology says:

In considering hereditary syphilis a special appeal is made to one's sympathy by the knowledge that the patient is the innocent victim of a terrible disease, and that this innocent victim has a disease that could have been prevented had some good doctor taken proper precautions in time.

I wish to discuss briefly the story of syphilis in children, but before doing so I will review a few facts about syphilis in general. According to the United States census of 1920,[1] syphilis stands fourth as the cause of death throughout the country, organic disease of the heart, pneumonia and tuberculosis slightly exceeding it. The general incidence of syphilis among the population of the United States is variously estimated at from twelve to twenty per cent, but certainly it is high. J. Whitridge Williams[2] found syphilis as the cause of 26 per cent of 705 fetal deaths among 10,000 consecutive deliveries. He was able furthermore to show that 40 per cent of the premature deaths were due to syphilis. Cruikshank[3] agrees that the incidence of congenital syphilis is probably only about 1 per cent of all the children born. This is a high percentage, especially when it is considered that the late sequelae of syphilis are disabling frequently rendering the child unfit for self support. Lemaire and David,[4] however, found sufficient evidence to make a diagnosis of syphilis in 19 per cent of 1,000 infants examined at one French clinic.

What are the early manifestations of congenital syphilis? These congenital syphilitic patients fall into three groups; first, those born with active open lesions, or who develop definite evidence of lues within the first eight weeks of infancy; second, those with latent lues, which remains undiscovered until some intercurrent infection or until some unusual strain, such as that put upon the body at puberty, brings out active manifestations; third, those children who have no active evidence of lues except for their delicate health or their backwardness.

Congenital lues can produce any of the lesions that are seen in the adult; but there is no regularity in its course to make the diagnosis easy. The various factors determining the character of the lesions and the virulence of the infection are by no means settled. The spirochaeta pallida does not follow the generally accepted laws of immunity, nor does the resistance of the patient rest upon so simple a result as an acquired immunity to the organism. It has been shown that the spirochaeta pallida exists in several strains, with a predilection for different tissues; that is, one produces predominantly skin lesions, another principally lesions of the vascular system, while others prefer to attack the central nervous system. There is definite evidence to show that syphilis is decidedly a general infection, regardless of the fact that the manifestations may be predominantly local in character. In congenital syphilis the disease may produce typical and severe lesions in the skin and mucous membranes with late or no involvement of the central nervous system. Again, the bones or vascular system may be the site of the most severe lesions or the central nervous system may give the first indication that the child is diseased.

We may summarize the lesions of hereditary or congenital syphilis as those of the skin, usually as bullae of the palms and soles (although any type of luetic skin lesion may occur), mucous patches and fissures about the orifices of the body; those of the bones, as epiphysitis, osteochondritis and periostitis, particularly of the skull, tibia and fingers, producing lesions easily confused with rachitis and tuberculosis; visceral disease, usually as hepatitis and splenitis; those of the central nervous system which may become evident very early in life, as idiocy at puberty, or later as juvenile tabes or taboparesis. However, these types of the disease do not follow any hard and fast rules.

The group of symptoms that particularly concern the ophthalmologist and the otolaryngologist are those of coryza with ulceration of the nasopharynx, which may extend into the eustachian tube, thereby producing otitis and deafness; perforation of the nasal septum, producing a saddle nose; perforation of the palate; chondritis of the epiglottis with stenosis, or ulcerating gumma of the tonsils. These lesions may occur early in the life of the child or make their appearance late. The typical Hutchinsonian teeth occur only in the second dentition. Iritis, choroiditis, interstitial keratitis, ptosis, strabismus, optic atrophy, orbital exophthalmos, and nystagmus may all be of syphilitic origin, and most commonly make their appearance about the time of puberty, but they are occasionally found during the first few months of life. Hydrocephalus, meningitis, encephalitis, myelitis and peripheral nerve palsies may all be the results of syphilis.

The diagnosis of these conditions can be made by any doctor if he will take a careful history and examine the child thoroughly. Unfortunately, the Wassermann reaction is very frequently negative in congenital syphilis for many months after birth, and the sense of security in the present day that such a negative reaction gives is nothing short of tragic.

Certain historical facts should always be asked the parents in every case in which the diagnosis is obscure. The mother frequently gives a history of several unexplained miscarriages; but will often deny the knowledge of a chancre or a secondary eruption. The father will more frequently admit having had a chancre, and the blood of either or both may show a positive Wassermann. That parents may pass hereditary syphilis on to the third generation is very doubtful, although there are several cases reported to show that they may do so. The sick child of a parent who has once had syphilis should always be considered syphilitic until proved otherwise.

The use of the spinal puncture has a bad reputation among patients, but its diagnostic value is very

1. Mortality Statistics, United States, 1920.
2. Williams, J. Whitridge: Bull. Johns Hopkins Hosp., November, 1923.
3. Cruikshank, J. N.: Brit. Med. Jour., Vol. ii, p. 593, 1922.
4. Lemaire, H., and David R.: Bull. Soc. de Pediat. de Paris, May, June, July, 1923, p. 214.

great. Very frequently, in adults as well as in children, the blood may show a negative Wassermann and the spinal fluid a positive, together with an increased cell count, a positive globulin and a syphilitic colloidal gold reaction. The luetin test and many others are used occasionally, but are largely confirmative in value.

When a disease is so much written about and the results of poor treatment are as disastrous as in the case of syphilis, it is the duty of every doctor to combat it. For instance, by a process of education and propaganda, the average layman has come to have definite and fundamentally correct ideas about the seriousness of tuberculosis, and as a result, the disease is being much better handled and the number "cured" much greater than twenty years ago.

The application of the word venereal to syphilis has been and is the great stumbling block to its early recognition and adequate treatment. So long as syphilis is considered a reason for ostracizing and socially abusing the sufferer from the pulpit and in polite society, this scourge will never be controlled nor adequately treated. About 20 per cent of conjugal syphilis is innocently acquired; that is, usually by the wife from an infected and inadequately treated husband. Certainly, the child with a syphilitic taint is innocent! it is time that everyone throw off all hypocrisy and squarely face the facts.

W. W. Graves[5] of St. Louis says: "It is safe to say that not more than 10 per cent of the total number of syphilitics, who come under medical observation in the early periods of the disease, receive what is believed to be 'adequate treatment'; hence the number of adequately treated cases is insignificant when compared with the number we believe to be inadequately treated and with the number who either ignore or are unaware of their infection."

What is considered adequate treatment by the best men in the country? Schamberg[6] is a good example of the best. He believes that the "irreducible minimum" of treatment should be, regardless of the effect upon the complement-fixation reaction (the Wassermann), three courses of treatment the first year, with an average duration of from two to three months per course; two during the second year, and one in the third. This does not constitute a sufficiency of treatment, but is merely the least possible amount any given case should receive.

If one should sit in any syphilitic clinic and hear the history of treatment that the majority of patients have received since their infection, he would be absolutely convinced that something is radically wrong. Most of these patients have received two or three doses of neosalvarsan, occasionally ten, scattered over two or three years, with a few mercury protiodide pills to take along in the interval. Many of them have syphilis of the central nervous system, severe cardiovascular syphilis or affections of the cranial nerves. *It is now known that the majority of these late sequelae, ninety per cent and over, can be prevented by an early adequate treatment.*

The reason that many of these patients have not received adequate treatment is because they are afraid to have it known that they have syphilis, because they will be marked as socially unfit. They often patronize the advertising quack who will guarantee a cure after two or three doses, depending upon how much money the victim has. Many doctors, not quacks, are without sufficiently accurate knowledge of the disease to recognize the stage of the disease and to know what treatment will give the greatest possibility of arrest or cure. Then, too, the average fee charged for a single dose of salvarsan is so large that the patient cannot afford to carry on his treatment for two or three years and remain under observation for five years. As a result, the patient must either take occasional treatment, go to a free clinic, or he must ignore the disease.

Adequate treatment of hereditary lues differs in principle not one bit from the treatment of the adult syphilitic; the differences depend upon the mechanical therapeutic difficulties and the dosage.

The drugs accepted as the best in the treatment of adult lues are the new American arsphenamin, mercury and the iodides. Neosalvarsan, because of the simplicity of its administration, is used in place of the arsphenamin by many men, while the most men reserve it for those patients who do not tolerate arsphenamin well and those with small veins. Sulpharsphenamin is rarely used in the adult because of its low therapeutic efficiency. Tryparsamid, a new arsenical, is the most promising drug developed within the last two years; it offers renewed hope to the hitherto practically hopeless group of general paretics. From the reports of Lowenhart[7] and others, this drug is performing therapeutic wonders among this pathetic class, reclaiming a very high per cent of them to a self-supporting condition. Bismuth is still in its experimental stages, and the results with it are not wholly encouraging.

Certain factors must be taken into account before treatment is begun and after a searching examination of the patient. These are the general resistance of the patient, the extent and seriousness of the visceral involvement, and the presence of an intercurrent infaction. Not the least important is the stage of the disease in which the child is presented for treatment. When the child has an active skin and mucous membrance eruption, the indication for immediate and active treatment is self evident. When the child is presented in a latent stage of the disease but is weak, anemic and not showing active disease, the treatment should be outlined with caution. If there is such a thing as immunity to infection, whatever its degree, it must be conserved, for that is the very thing that the treatment itself is planned to do. When, however, the late manifestations of latent lues begin to show renewed activity, as at about puberty, active and intensive treatment is again indicated.

There are two ways in which to administer the

5 Graves, W. W.: "Principles in Modern Recognition and Treatment of Syphilis," Amer. Jour. of Syphilis, January, 1924, Vol. viii, p. 74.

6. Schamberg, J. F.: "Modern Conceptions of the Treatment of Syphilis," Penn. Med. Jour., January, 1928, Vol. xxv, p. 228.

7. Lowenhart: Jour. A. M. A.

arsenicals, either as massive doses over a short period of time, with the attempt to sterilize the patient of the spirochetosis, or in smaller doses over a long period of time, with the idea of increasing the patient's general health and with a secondary, but not radical spirocheticidal action. No hard and fast rule can be laid down to govern the treatment of any particular case, and the patient must be treated on the basis of his general health and not by any rule of thumb.

In general, the treatment should be given in courses, including arsenic as arsphenamin or neoarsphenamin in older children and adults; and sulpharsphenamin in small children. Mercury should be given in the intervals between the arsenical treatments, in the form of daily rubs with mercurial ointment or by intramuscular injections of some of the mercurial salts, preferably the soluble salts, once or twice a week. Those with marked renal damage should be given the combined treatment with caution, but if a careful watch is kept on the urine, serious consequences from kidney damage rarely follow. The dosage must be suited to the age and weight of the patient. The first dose of the arsenical should be only one-half the reckoned average dose, to determine that the patient has no idiosyncrasy to arsenic, and that he will not have a severe Herxheimer reaction. The use of mercury for a week before the first dose of arsenical also tends to prevent a serious reaction from the arsenical.

The treatment should be continued in courses of from six to twelve doses of the arsenical and the accompanying mercury over as many weeks; a rest period of six weeks is then given in which the mercury is continued; at the end of that time treatment is discontinued altogether for two weeks or longer. Before treatment is begun again, a Wassermann test is made, and if that is negative, a lumbar puncture is done, with a complete examination of the spinal fluid. Three such courses are given the first year and as many each year thereafter as the condition of the patient warrants.

In those patients who are intolerant to arsenic, mercury and the iodides will often work wonders, and in some of them the addition of bismuth has been beneficial. Arsphenamin and bismuth is better treatment in others.

The results of treatment of the lesions commonly seen in the eye, ear, nose and throat are usually good. The disappointments come in certain late cases, which have relapsed after insufficient treatment and in those who come for treatment after much tissue has been destroyed or in whom a complete paralysis of some of the cranial nerves has taken place. Even in this group, benefit may be expected and the general health improved, although the scars of the healed disease may remain.

Tabes and paresis should be treated intraspinally as in the acquired disease, but the results in children are not so good as in the adults.

When is the patient cured? That is the most serious, and at the same time the most baffling question to answer. One syphilographer has said that none but a wise man could answer that question, and he, by answering it *positively*, would thereby prove himself a fool. The following is a fairly accurate criterion upon which to release a patient from active treatment: After treatment has been continued in full continuous courses over two or three years up to the tolerance of the patient, if the patient's blood Wassermann remains persistently negative for two years after the last treatment, if there is no clinical evidence of active lues and if the spinal fluid is normal, it may be presumed that the patient is cured. Observation must be continued for at least five years, and probably should be continued throughout the patient's life. Relapses are prone to occur, and by this prolonged observation the indication for more treatment can be immediately met.

Adequate treatment of hereditary lues means that the therapeutic needs of *each particular patient* have been met.

THE MODERN SHOE, AS A FACTOR IN FLAT FOOT*

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Thousands of pages have been written and read. during the past ten years, on the subject, "Flat Foot," "Weak Foot" and "Fallen Arches," and the causes which allow this crippling handicap to manifest itself; and other thousands of pages have been filled with descriptions of operations or mechanical devices or exercises, any or all of which are advocated for the amelioration of this serious pathological state.

To date, I have seen nothing in literature, which comes very close to offering a logical explanation as to the causative factor back of the broken arch and the weakened muscles and tendons, which allow the arch to collapse, and weak foot manifest itself.

The probable reason back of the obscurity as to the etiology, in flat foot, is that the *real guilty factor* is so patently obvious that it has been overlooked..

I think that I shall be able to demonstrate that the *modern shoe* is responsible for those cases of flat foot not due to trauma, but we must, of course, also keep in mind that we are now, because of heredity, breeding children with weak archesc and a tendency toward flat foot.

By the term, modern shoe, I do not refer to any of the "freak shapes" in leather, which sometimes pose as foot coverings; neither do I desire to discuss the high-heeled crippler, which most of our women still wear, in spite of the fact that, if our women didn't, and the cannibals did, our Missionary Societies would at once take steps to make the poor cannibals cease doing so.

In referring to the shoe, which I think is doing the damage, I am calling your attention to the one you are all wearing, as you read this paper; and the astounding thing is, that we have allowed this archaic, leather cripple-maker to damage our feet, one generation after another, without suspecting it, convicting it of the crime, and ostracizing it, as a penalty.

THE FLAT INSOLE

A line, drawn centrally along the bottom of a normal,

unshod foot, gives a series of curves, concave for the heel, convex for the arch, concave for the ball, and crossed at the end, by five lesser convexities, for the balls of the toes, while lines drawn at right angles to the center line, across the bottom of the foot, show crescent shaped curves of various forms, with their concavities upward.

A line drawn from heel to toe, down the inside center of the modern shoe, would be almost straight; and cross lines, at right angles to this line, would be almost equally straight.

These straight lines of the insole of the modern shoe demonstrate a more or less flat, unyielding surface, and this *flat inside*, is the prime, present day flat-foot producer.

Take a plaster cast of the inside of a new shoe, and note the comparative flatness of the sole, and you will cease to wonder as to the "why" of flat foot, especially if you take a like cast of a much worn shoe, and note the difference in the inside contour.

These two casts will demonstrate the great indignity which must have been imposed upon the imprisoned foot, when it was asked to compel the stiff, inflexible materials which go to make up the insole to show the natural curves of the foot-sole after months of wear.

When the time comes that we have almost worn the shoe out; when we have, with the soft tissues of the foot, compelled the inflexible "foot prison" to be wearable and "comfortable as an old shoe"; when the time comes that a combination of foot dampness and innumerable applications of body weight in walking have so moulded the shoe sole that it conforms to the shape of the foot and can be worn with comfort, shoe shabbiness demands that the old shoe be discarded and the moulding process repeated, with a new pair of shoes.

Is it not wonderful that so many of us have escaped the broken arch and, if acquired characteristics are transmitted, is it not surprising when we find a perfect arch, among shoe wearing peoples?

THE FLAT HEEL

Add to the above faulty inside shoe construction, another item, which is found in almost every shoe manufactured, and you have the most complete and efficient foot wrecking combination which could be devised. I refer to the *flat bottomed shoe heel* and its function in not allowing a lateral roll or swing to the ankle joint.

The bottom of the shoe heel, the part that comes in contact with the ground, should be oval, as is the bottom of the heel of the infant foot, thus allowing for constant strengthening exercise of the lateral ligaments of the ankle joint.

This ideal heel, besides being oval, should be but little thicker than the sole of the shoe, to which it is attached, for the mechanical principles on which the foot is constructed demand that, for perfect efficiency, the long axis of the foot shall be parallel with the supporting surface with which the shoe comes in contact.

Economy, as based upon preparedness for long wear, first dictated the thick heel, and shoe-makers still maintain it, in spite of the fact that it is as archaic as would be a whip socket on an automobile.

The "run-over heel," on an old shoe, offers mute evidence of the effort, upon the part of the foot, to compel the flat surfaced heel bottom to assume an oval contour.

THE IDEAL SHOE

If shoe manufacturers would make the model for the inside of a shoe from composite photographs of plaster casts of hundreds of feet of a given age, and build a shoe, to the inside of which the average foot will conform without pain or discomfort and attach to the shoe, an elastic heel, the oval bottom of which closely approximates the heel of the normal foot, they will have produced a foot covering which will check the present deplorable tendency toward flat foot and do much toward correcting the cases of flat foot, now existing.

I am hoping that this article, when published, will fall under the eye of some shoe manufacturer, who is such a combination of philanthropist, capitalist and adventurer that he will dare to place upon the market a shoe designed along the lines suggested, and thus prove the truth or fallacy of the ideas just presented.

*Read at the Buffalo Meeting of the Wyoming State Medical Society, June 23-25, 1925.

MALARIA TREATMENT OF PARESIS INSTITUTED IN THE BROOKLYN STATE HOSPITAL.

The treatment of paresis and tabes by inoculation with malarial organisms first undertaken and now vigorously advocated by Professor Wagner Jauregg of Vienna, has been tried and applied in numerous institutions treating those who are tabetic or paretic, and is now, with the approval of the Commissioner of Health, to be tried out in the Brooklyn State Hospital in Brooklyn, N. Y. This work is to be under the supervision of Dr. John L. Macumber.

In instituting his therapeutic procedure, it is of interest to note that from the public health point of view such malaria treatment must be so carried on as not to constitute a public hazard. There is practically no danger of malaria spreading if care is taken to screen completely the patients treated. The danger of spreading the disease, under proper precaution, is further minimized because malaria that propagates in the human host is in an asexual cycle and after several human passages gametocytes are no longer present in the blood. The anapheles mosquito is apparently unable to transmit this form of artificial malaria. Another factor of safety in New York City is the fact that there are no anopheles in this city at the present time.—*Bulletin of N. Y. City Department of Health.*

BURNING THE CANDLE AT BOTH ENDS

"I have only one request to make," groaned the college man who had come to work in the harvest.

"What is that, Mr. Smart?" returned the farmer.

"Please let me stay in bed long enough for the lamp chimney to cool off."—The Open Road.

Original Articles

THE CONQUEST OF DISEASE*

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The title of this paper would perhaps be more correct if it were "The Solved and Unsolved Problems of Communicable Disease," for not all communicable diseases have been controlled the world over, even though in some countries like the United States we do not have diseases such as bubonic plague, cholera, typhus fever and other diseases that are epidemic at times on the continent. And with my limited time I can only give a summary of some of the diseases that have been fairly well controlled.

Man has lived on the earth for hundreds of years and his knowledge relative to prevention of disease prior to the nineteenth century was so lacking that little headway was made in the control of those diseases that are now known to be communicable.

In very early times, plagues and epidemics were believed to be due to supernatural agencies and epidemics were regarded as visitations of demons or evil spirits. Another theory advanced was that epidemics were caused by the position or movement of heavenly bodies. Even Noah Webster believed that volcanic eruptions or earthquakes were partly the cause or had something to do with epidemics. And a third theory was that foul air or miasmas were the cause of epidemics. This theory appears to have originated with the Greeks and Romans and some of our great scientists believed this to be the cause of epidemics even up to the middle of the nineteenth century, for it was not until the establishment of bacteriology that we were at least given an insight into the cause of disease.

The beginning of scientific and preventive medicine dates back to the early part of the eighteenth century when Edward Jenner established for the first time the use of vaccine from cowpox in the prevention of smallpox in human beings. Some fifty years later, Davaine, a French pathologist, found, on examining the bodies of cattle which had died of anthrax, the constant presence of minute rods shown later by Koch to be the cause of the disease.

Louis Pasteur's work on fermentation was really the beginning of bacteriology and stimulated by the successful investigations of Pasteur, Joseph Lister became convinced that many wound diseases were probably due to germs and by using antiseptics, paved the way to the present practice of aseptic surgery. It was from 1857 to 1863 that the germ theory of fermentation was definitely established when Pasteur demonstrated that the aging of wine by bacteria could be prevented without changing its taste by heating it from 55 to 60 degrees Centigrade. This principle is now used in the pasteurization of milk. About this time Pasteur also developed a vaccination against rabies and as a result of his investigations, a number of institutes have been established all over the world for the treatment of this disease. Twenty years after Pasteur's work on fermentation, Koch announced his discovery of the organism of tuberculosis and within a space of four or five years there was also announced the discovery of the organism of Asiatic cholera, diphtheria, tetanus and the bacillus of typhoid fever.

During the last half century, Pasteur's saying that "It is within the power of man to rid himself of every parasitic disease" is being realized, for today our average length of life, according to the 1920 census, is 56 years. The average duration of life has been increased 15 years in many countries of the world during the past 75 years. This is indeed a great achievement, for the average length of human life in the sixteenth century was from 18 to 20 years: in the beginning of the last century 25 years and in the beginning of the present century it advanced to 48 years, and, as I stated before, at the present time it is 56 years. With the advances in scientific and preventive medicine, if the knowledge we possess at the present time were generally applied, fifteen years could be added to the average span of life.

Before the eighteenth century, smallpox occurred as frequently as does measles today and was a disease of early child life. And until Jenner discovered that the vaccine from cowpox would vaccinate the people against this disease, it was estimated that over 600,000 people died each year from smallpox. In Illinois more than 5,000 cases were reported during the past five years and more than 320,000 cases in the United States

*Read before the Section on Medicine, Illinois State Medical Society, Champaign, May 19, 1926.

during the same period. In some of the eastern states, such as Massachusetts and Pennsylvania, where they have compulsory vaccination laws, epidemics of smallpox are seldom found. The same is to be said of some of the European countries where, in 1923, 195 cases were reported from France and only 17 in Germany. This low morbidity is due to the fact that the people of these countries are thoroughly vaccinated.

In January, 1918, an epidemic of typhus fever swept over Servia and it was reported that 9,000 persons died from this disease and since 1918 over 30,000,000 cases of typhus have been reported from Russia with some 3,000,000 deaths. This disease is transmitted by the body louse, and in studying the cause of transmission, Drs. Ricketts and Prowaseak, martyrs to science, both succumbed to the disease. Typhus is sometimes brought into this country by immigrants, but the number of cases are small and are limited to cities on the coasts.

During the fourteenth century one-fourth of the population of Europe succumbed to bubonic plague and from 1896 to 1917 some 10,000,000 persons died in India from this plague. It is claimed that over 250,000 deaths occur in India annually from this disease. Some sixteen years ago, back in 1910, a very virulent epidemic of pneumonic plague swept China and thousands of persons died. At different times bubonic plague has also been brought into this country, but as in typhus fever, the cases have been limited to the coast cities.

Yellow fever has appeared in this country 112 times during the year from 1702 to 1878 and during this period two great epidemics occurred, one in New Orleans with 29,020 cases and 8,101 deaths and one in Memphis with 17,600 cases and 5,150 deaths. Prior to 1900, it was supposed that this disease was transmitted by fomites, but it remained for Reed, Carroll, Lazear and Agramonte to definitely prove that the mosquito was the agent that transmitted this disease. Unfortunately during the time this investigation was being carried on in Cuba, Dr. Lazear was accidentally bitten by an infected mosquito and died from yellow fever. As a result of the findings of the U. S. Army Commission headed by Dr. Reed, Gorgas was able to rid Havana of yellow fever and later, by applying proper sanitary measures in the Canal Zone, he was able to control yellow fever in this zone and also reduce malaria and other communicable diseases in this area. In 1919, Noguchi found that yellow fever was caused by a spirochaete. No yellow fever has been found in this country for a number of years.

In 1884, Loeffler proved the diphtheria bacillus to be the specific cause of this disease and at the time this bacillus was discovered it was believed by many that diphtheria would be one of the communicable diseases that would be easily controlled, but progress has not been made in the control of this disease as was expected. It was not until 1892 that diphtheria antitoxin came into general use for both passive immunization and curative purposes and since then a marked reduction in mortality has taken place, but if the disease were recognized earlier and antitoxin given the first day, the mortality would be nil. In 1911, Schick discovered the test known by his name and by this test we can determine whether a person is susceptible to diphtheria. Shortly after the discovery of this test, toxin-antitoxin was developed for active immunization. Eighty-five per cent. of persons given three doses of toxin-antitoxin are found to be immune after a three months' period. Drs. Park and Zingher of New York are now using a detoxicated antitoxin which they call anatoxin. They claim for this product less reaction and a greater percentage of immunization and state that 95 to 97 per cent. are immune after a three months' period. Unfortunately, it takes a long time to educate the public. If they would only accept toxin-antitoxin as they should, in a very short time this disease, instead of being prevalent, would be a rare one.

During the past fifty years there has been a decrease in the mortality of scarlet fever, even though the morbidity rate has not been reduced. This is indeed remarkable inasmuch as up to a year or two ago we had no antitoxin for the treatment of this disease. For years a number of research workers have believed that certain streptococci were probably the causative factor in scarlet fever, but it remained for Drs. George and Gladys Dicks to show experimentally that a certain or specific streptococcus was the cause and that this certain or specific streptococcus produced a specific toxin and this toxin when injected into man is capable of producing a typical attack of scarlet fever. Until recently, quarantine, isola-

tion and pasteurization of milk supply were about the only practicable and dependable ways known to health officers in preventing and controlling scarlet fever. Now we have available a toxin for determining the immunity of an individual, toxin also for active immunization and an antitoxin for curative purposes. It has been found by tests that three doses of scarlet fever toxin are not sufficient to immunize susceptible individuals. At least five injections must be given and they are now giving a 500 skin test dose for the first injection, 1500 for the second, 5000 for the third, 15,000 for the fourth and 25,000 to 30,000 for the fifth.

Measles and whooping cough, the so-called minor diseases of childhood, each take a greater toll of human lives in Illinois than does scarlet fever. During the last five years more than 176,000 cases were reported and more than 154,000 of the cases occurred during the first six months of these years. It has been observed that measles runs in cycles, epidemics appearing every two years in cities and every three years in the country. This may be accounted for, in that there is a new crop of babies or a new crop of susceptibles every two or three years. A great amount of scientific research work as to etiology of measles has been carried on for the past quarter of a century. During the past two years, Drs. Tunnicliff and Ferry have found an organism which they think may be the causative factor. In a number of the larger cities, attempts are being made to collect convalescent serum from persons having had measles, it being understood that all serum thus collected be first tested by the Wassermann test for syphilis before being used on persons exposed to measles. In a number of studies made by Drs. Hoyne and Tunnicliff, they report very favorably on the goat serum in protecting children who have been exposed to measles. Of 17 children giving a negative history of measles, and who were given goat serum on the first two days after exposure, 13 showed no signs of measles. Seven children who received the serum on the third day or later came down with measles. In other cases, where convalescent serum was used as a control, the percentage of persons who contracted measles was the same as those injected with goat serum. A number of authorities are now advocating that since a person will contract measles sooner or later, it would be well to give children a small dosage, say 2 to 5 cc. of the serum in the sixth or seventh day of the incubation period that it will so modify the disease that the attack will be mild and the child will be protected against a subsequent attack of measles. Where it is impossible to obtain convalescent serum, Degkwitz has used 30 cc. of adult blood from parents who have formerly had the disease and reports protection in half of the children immunized.

Whooping cough has yielded but little to preventive or curative efforts, but some pediatricians hold out hope that the paroxysms may be modified by the use of the x-ray. This is still in the experimental stage. Vaccines have not proved to be of the value we had hoped for.

Some authorities state that gonorrhea ranks with measles as to its prevalence and that syphilis causes directly or indirectly more deaths than any other disease. We know the cause, mode of spreading and method of prevention, but we have not made the headway in the control of these diseases that is possible. The public has not applied the knowledge contributed by the medical profession in combating this great human scourge. As has been said, "It remains for the future, involving as it does not only preventive medicine problems but broad sociological adjustments which necessitate the curbing of fundamental instincts."

Influenza is one of the respiratory diseases that we know little about other than it becomes pan-epidemic every so often. After a pan-epidemic of influenza, Brownlee states that it recurs in waves in intervals of 33 week periods, provided the 33rd week does not fall between June and December. Otherwise it occurs in mulitples of 33 weeks, avoiding the warm months of the year. It is said that influenza may be due to any one of a number of different organisms. Olitzy and Gates think that the possible cause of influenza is Bacillus pneumoncintes, but they have not been able to give definite proof. If this organism later proves to be the cause of influenza it will greatly aid in diagnosis and perhaps later a vaccine can be made for preventing this disease.

Pneumonia stands near the head of the list as a cause of death and this disease has a higher death rate among children of one year of age

than during any other age group. Practical means of prevention have not been demonstrated but studies are being made by the Pneumonia Commission of Chicago and by the State of Illinois and we hope in the future that, as a result of this research, we will be able to reduce the incidence of this disease. Vaccines are being tried as a preventive and sera are being used in certain types of this disease.

Typhoid fever, one of the diseases which has been such a scourge in this country for years past, has been brought under control in many of the larger cities, as Chicago and New York, where it is absolutely negligible. This has been brought about by good water supply, good milk supply, compulsory pasteurization, with adequate sewerage systems, supplemented by widespread vaccination and follow-up work of health departments in checking source of the infection of this disease. Any community can determine its own morbidity and death rate from typhoid fever. This can be readily proven when in 1911 vaccination was made compulsory in the army and only four cases occurred in 1913 in an enlisted force of 80,000 men. If the dejecta from all cases of typhoid fever were properly disinfected before being disposed of and all contacts in the home and other exposures were immunized against typhoid fever, these two things alone would reduce the typhoid morbidity in Illinois 30 to 40 per cent.

Tuberculosis, which has been the scourge of the human family for years and years, has shown a slow and continuous improvement. This improvement antedates even the discovery of the tuberculosis bacillus, before milk was pasteurized and cows tested for tuberculosis. There has been a decided drop in mortality during this period. A great deal has been done toward improving the living conditions, also towards getting sanatorium care for those ill with tuberculosis, and better follow-up of those who have been exposed to the disease. Fresh air and open window rooms aid greatly in improving the resistance of the school children.

Professor Calmette, in collaboration with other workers in the Pasteur Institute, gives the results of protection afforded the new-born against tuberculosis by use of his B. C. G. vaccine. In his investigation which covered more than 5,000 children in France, he states that the mortality rate in children under one year of age from tuberculous mothers is more than 25 per cent. and in Paris 32.6 per cent.; in those children that have been treated with his B. C. G. vaccine, the rate has been less than 2 per cent. as it saves 93 out of 100 babies that otherwise would die of this disease. It seems the immunity conferred lasts from 15 to 18 months and the children should be revaccinated again about the third year.

Many of the diseases I have just discussed have a seasonal prevalence that tends to periodic recurrence but we are unable to predict just when they will appear with any degree of certainty. Why these diseases occur and reach a peak during certain months of the year we are able only partly to explain. There are many factors which control seasonal prevalence other than climate and weather. Scarlet fever is a disease that is rarely found in the tropics and same may be said of diphtheria, but this is not true of pneumonia, tuberculosis, and influenza, for these diseases take a toll in the tropics same as in northern latitudes. Then again smallpox and measles when introduced into a virgin soil even during summer months become epidemic and continue so until the epidemic burns itself out or until there are no longer any susceptibles. This is well illustrated in two epidemics of measles, one in the Faroe Islands, where for 65 years the inhabitants were free from measles, and when the disease was introduced in 1846 over 6,000 of the 7,782 islanders contracted the disease and many died. The other and more striking epidemic occurred in the Fiji Islands in 1876 where among the population of 150,000 more than 40,000 deaths occurred.

Communicable diseases divide themselves naturally into three groups as far as their prevalence is concerned: insect-borne, intestinal and the diseases of the respiratory tracts. The insect-borne prevail mostly during the summer time. The intestinal diseases which have a world-wide prevalence include such as typhoid, cholera, typhus, and dysentery; insect-borne are yellow fever and malaria, and the respiratory group consists of diseases such as sore throats, influenza, common colds, scarlet fever, pneumonia, etc.

As Park so well states, "the severity of outbreaks of communicable disease will be determined by the relative susceptibility of the individuals making up the population, the type of

virulence and degree of virulence of the microbe, the degree of exposure and the health and living conditions of the people." A very interesting experiment relative to epidemic of mouse typhoid among white mice has been carried on by Topley in England. Topley exposed susceptible mice to convalescent carriers and then placed them in contact with a second group of susceptibles for a brief time early in the incubation period, yet long enough to transfer the microorganisms and the second group was similarly placed in brief contact with a third group and the third with the fourth, and so on up to ten groups. All the mice of the second group, which had been in contact with carriers directly from an actual case, took the disease and died. Only two out of five in the third group became infected and none were infected in the other groups. Dr. Topley thinks that presumably the mice were all susceptible but the microorganisms had lost their invasive power. In another experiment where he added susceptible mice to a group that had been immunized or passed through an epidemic, he found that after a large number of the susceptible mice became infected, those mice which had passed through the former epidemic also succumbed.

Dr. Frost of Baltimore and his co-workers have done some interesting work relative to carriers where a number of families were followed during the winter months and in no instance in these twenty families which had one or more carriers did a case of diphtheria appear. They also found, as did Dr. Topley, that the dangerous individual was the convalescent case or a contact with the diphtheria case, that the farther removed the carrier was from the case the less virulent the organism and no doubt that while these carriers are not virulent, they still produce enough toxin to immunize the individual that was a carrier and this may account in part for the higher degree of immunity among children on the east side of New York than in other parts of the city and rural sections of New York.

By these experiments on mice and by epidemiological studies in diphtheria, we learn that the case and convalescent carriers are the ones to guard against. The farther the carrier is removed from the case, the less virulent the organism. Organisms that have partially lost their virulence in passing from host to host, if they do not start up new cases, at least immunize or partly immunize those that harbor them. By suppressing at the beginning outbreaks of communicable disease, the keeping up of the normal resistance of the people will in greater part help to keep down epidemics and, it has been said, "it is only when the normal conditions of the community are disturbed by war, famine or earthquake that widespread epidemics will occur."

DISCUSSION

Dr. S. S. Winner, Springfield: I want to emphasize a few points that Dr. McShane brought out, points pertaining to conditions that we deal with in this state every day.

1. Smallpox. Unfortunately we are dealing with smallpox every day. We have not only the discrete type, but we meet with the malignant type as well.

I attribute the reason for this condition to several factors: 1. The ignorance of some people as to the value of vaccination. 2. The indifference or unwillingness of some of the members of our profession in teaching their patients, or the people, of the value of vaccination.

You all know we have a certain class of people who, through misguided propaganda, are against vaccination.

The health officer in the community is helpless if he has not the active co-operation of the physician. Vaccination absolutely protects the individual if the individual is successfully vaccinated in spite of Christian Scientists and osteopaths and chiropractors.

Unfortunately we cannot compel vaccination in this state. The only time in which we can enforce vaccination, and not even then can we enforce it, is when smallpox is prevalent in a community and threatens to become epidemic. And then we can only keep children from school.

We have the means of eliminating diphtheria just as effectively as smallpox. We can vaccinate susceptible individuals. Give toxin-antitoxin until the individual is immune; retest the individual six months later. If he is not immunized, repeat the dose.

One more point, scarlet fever. I have been working with Doctors Dick in the last few months in the state institutions. We found about 83 per cent. were completely immunized at five doses. Those not completely immunized were given an additional dose of 30,000. And in practically every one of those cases we secured complete immunity against scarlet fever.

Dr. Samuel E. Munson, Springfield: I am very glad that Dr. McShane has brought up the subject of control of diseases before this section. It seems an old and time worn thing to talk about smallpox.

Whatever your idea of the prevention of diphtheria and scarlet fever, we have resting upon our shoulders a very important thing to assist the authorities of our state and the authorities of our government in trying to prevent today and probably in the future to eradicate these diseases. The difficulty, I think, to quite an extent lies with the doctors themselves. We are too care-

less about our methods of quarantine. We are too careless about our own cases. We are very particular, as a rule, to criticise the other physician who has been careless with a neighbor's child near a family under our care that has contracted one of these diseases due to the carelessness of another physician.

The first thing when you are called to see a suspected case of contagious disease, the mother will say, "Doctor So and So was called next door and the child had a slight rash. I don't know exactly what it was. He did not ask for a quarantine at all." Now, in fifty per cent. of the cases of contagious diseases that I see as a rule this is the condition.

Now, gentlemen, I am reminded of a circumstance. We at one time thought there wasn't any known smallpox in the city of Springfield. This was in one of the best families. The boy had an eruption on the skin. And, after a period of 24 hours of observation, I ordered a quarantine in this case. One of the physicians in the neighborhood came by. I saw him in the hospital the morning. He said, "You certainly have your nerve, Doctor, for ordering a quarantine on this family when there isn't any smallpox in Springfield." It was a good family. I might lose them because I did this. But I talked the matter over with the father. He said, "Doctor, I would rather have my son in quarantine for two weeks than to have anyone in this neighborhood exposed if it is possible this is a case of smallpox."

Now, with that frank sort of attitude, gentlemen, you are going to have the assistance of families under your care. And it is up to you, where the methods are known and the methods of the doctors so well understood as they have come down through the whole history of preventive medicine along the line of these contagious diseases.

There was another case at the same time of this boy's case which turned out to be also a case of smallpox. A man who was employed by the C. & A. Railroad was working down in the state. He had an eruption occur on his skin. It looked like smallpox to me. There was no smallpox anybody knew about at the time in the city. I asked him if he had been exposed to anyone who had smallpox. He said: "We have been doing a piece of work at Alton. An old man sitting across the table where I have been boarding had chicken-pox. He was 80 years old."

I reported this to the State Board of Health. An inspector went to Alton and found there was an epidemic which had been unrecognized by the local profession.

As Dr. Winner said, you have the methods of preventing these diseases. Be honest with your families. Be honest with your fellow practitioners. And when you see a case of rash, if it is only a bad rash, you are perfectly within your rights, if you ask for a quarantine.

But suppose you have made a mistake in diagnosis and the whole neighborhood is infected, or may be a public school, you are really responsible for such a condition.

Dr. Victor McClanahan, Aledo: I would like to ask Dr. McShane to say a word about the borderline communities and the need of quarantine in pneumonia.

Dr. A. A. Crooks, Peoria: I would like to bring to you more forcibly what I feel is the laxity of the general practitioner in preventive lines, especially with the pre-school child. In our larger cities something is being done. In the smaller cities practically nothing is being done in a pre-school way.

I believe it is a duty that we owe our families that we immunize their children. They have a misconception of toxin-antitoxin. I believe it is the duty and the privilege of the general practitioner to call it to their attention and to assist upon immunizing these particular children.

We know that 90 per cent. of children from six months to six years of age are susceptible to diphtheria. Instead of using your Schick test—even though this is not a scientific statement to make—I believe we could dispense with the use of the Schick test between six months and six years, give toxin-antitoxin and then re-Schick to find out whether our child is still susceptible.

Certain physicians will go into homes, "I am not quite sure what this eruption might mean." A delay of diagnosis and a delay of quarantine. I could call your attention to many instances where I have had spread of contagion in my schools simply because of the negligence of that type of practitioner. I feel that this is not fair to the family, and certainly not to the community.

As a public health official I would ask you to go away from here with that particular thing impressed upon you very forcibly. The majority of us are very much on the square. I see that every day. I know that. But let us know conditions. We have state quarantine laws that permit us to hang a suspect card until the definite diagnosis may be made. Let us use more suspect cards generally.

Dr. John J. McShane, Springfield (closing): I do not think I could add anything further to what has already been said by Drs. Winner, Crooks and Munson, any more than to state we would be pleased to furnish toxin-antitoxin to anybody that wishes it.

A great many of the doctors may not know that the state furnishes Schick test material for determining the immunity of the children whom they wish to test, and also toxin-antitoxin for active immunization.

We are not yet in a position to furnish material for the testing of scarlet fever or scarlet fever streptococcus antitoxin for curative purposes. We hope to be able to do so in the future.

Relative to pneumonia, I may say, that at the present time we require isolation of the case, not the contacts, since the case is the one that discharges the virulent organisms and may be a source of infection to others. By isolating the case you minimize the danger to others.

Some authorities have used the certain types of pneumococcie vaccines giving immunity for a short period of time during the winter months. Studies are being made in Pittsburgh and Chicago and we hope we will be in a position to give you something later on that.

The Chairman: Where can toxin-antitoxin be procured?

Dr. McShane: If you will address your letter to Springfield, we will be glad to send it to you. We keep our toxin-antitoxin at the Central Laboratory because of the short potency period. If you make your request to Springfield, we will be glad to send it to you.

P. S. At present time it is being distributed through our agencies.

THE COLON AND ITS ABUSE*

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As Hurst has said, "The sins of the colon are its diseases," but one sometimes wonders whether it is not more sinned against than sinning, for with attacks from above with cathartics and attacks from below with enemas, it is indeed in a sorry plight.

A more thorough understanding of its normal anatomy and physiology and the routine employment of the different methods of examination that we have at hand are necessary if we are to recognize these faults early and institute treatment which will tend to relieve them. The muscular layer is the largest of the three coats of the colon and consists of an inner circular and an outer longitudinal portion. It has a double nerve supply. The sympathetic fibres for the colon and rectum originate in the lower lumbar region and stimulation of these diminishes the tone of the musculature and inhibits its movement. The parasympathetics (which are physiologically equivalent to the vagus nerve) are supplied through the pelvic nerves and stimulation of these increases the tone of the musculature and renders its movements more active. Sacral fibres from the latter end in connection with ganglion cells situated between the circular and longitudinal parts of the muscle coat where they constitute the plexus myentericus of Auerbach. This has been shown by Keith to consist mainly of nodal tissue, similar to that in the heart.

Normally the mucous membrane of the colon is kept moist by the secretion of mucus which renders the onward passage of the feces easier. Like all other mucous membranes, this mucous membrane reacts to mechanical and chemical irritation by the secretion of *excess* mucus to protect its delicate lining epithelium from injury.

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Similarly to other hollow organs in the body the motor functions of the colon depend upon tone and peristalsis—the two being mutually independent. Thus peristalsis is often very active in the presence of decreased tone and may be weak or irregular in the presence of increased tone. The lumen of the gut depends on its tone and this in turn varies according to the amount of gas and feces present in the segment at the time. Because of this the internal pressure is normally constant and only rises when its tone or the volume of the contents is pathologically excessive—pain being then produced. We are more familiar with this adjustment of size to content in the stomach through our fluoroscopic observation of this organ.

The contrast afforded by the continuous peristalsis of the stomach, and the continuous peristalsis and segmentation of the small intestine on the one hand, and the completely motionless colon on the other in fluoroscopy following a barium meal, is very striking. One of the movements of importance in the colon is mass peristalsis, and two to three times daily a powerful peristaltic wave moves with great speed along a considerable length of the bowel, carrying the contents before it. This movement is preceded by a sudden disappearance of the normal haustral segmentation which returns after its completion. The gastro-colic reflex which follows the taking of food into an empty stomach is the main stimulus to this movement.

Two of the chief functions of the colon are the absorption of water and the storage of waste material. The contents are normally liquid in the cecum, mushy in the transverse colon, and formed in the pelvic colon, and if the bowels are moving regularly and completely there is no formed material above the last portion. The sensation of fullness in the rectum which leads to the desire to defecate is brought about by the entry into the rectum of some of the feces which have accumulated in the pelvic colon during the previous twenty-four hours.

A diet which produces insufficient mechanical and chemical stimulation of intestinal activity is perhaps the most common of all the causes of constipation. This is the result of the modern methods of preparing food. Moreover, in civilized countries the quantity of indigestible cellulose which is present in the food is generally softened to such an extent that it loses much of

its value as a stimulant to intestinal activity. Vegetables and fruits in addition to their cellulose content contain chemical stimulants to intestinal activity, the most important of which are the organic acids and sugars.

In an ordinary mixed diet it takes twenty-four to forty-eight hours for the residue from the food to pass through the intestinal tract. Therefore, if an individual who thinks he is constipated empties his tract with a cathartic or large enema, there is no more residue for a bowel movement for at least one to two days and perhaps longer, depending on the type of food eaten. Since the amount, color, and consistency of the bowel movement are dependent to a great extent on the type of food taken in, it is easy to see why the patient gets into the habit of using cathartics and large enemas.

The function of a cathartic is to stimulate peristalsis and produce rapid emptying. A small percentage of individuals can take cathartics *often* over a period of years without distress, but the great majority because of this long continued irritation, develop perverted contractions in the large bowel giving rise to the clinical symptoms of pain, fullness, pressure and weight, bloating with flatus, and belching, sometimes associated with nausea and even with vomiting, but this is rare.

With his enormous experience the late Dr. B. W. Sippy has said that the greatest cause of abdominal distress is this nervous irritability of the lower bowel, aggravated by cathartics and large enemas. He has used the term, "irritable bowel," a non-inflammatory irritation in contrast to "colitis" which is much rarer and denotes an inflammatory condition, and should never be diagnosed without evidence of inflammation, as shown by stool and sigmoidoscopic examination. One must realize, of course, that certain foods and combinations of foods are irritant and cathartic in action, especially because of the organic acids they contain, as well as the cellulose. A well known example of this is the "boiled dinner" or sauer-kraut which the patient says "disagrees" with him, or of apples because of the mallic acid they contain, or the lactic acid in buttermilk.

A typical history would give the following complaints:

Abdominal distress with pressure, fullness and weight;
Rumbling and gurgling across abdomen;
Constipation and catharsis;
Nervousness with nausea at times.

The distress in the abdomen may vary from a dull ache to cramp-like pain, and may be localized anywhere along the course of the colon or generalized over the whole abdomen. May occur while eating, shortly after, or at any time. Often present in the morning before breakfast. These points differentiate it from an uncomplicated peptic ulcer. Belching-passing of gas by bowel, and a bowel movement often give much temporary relief or the distress may be distinctly aggravated just preceding or immediately following defecation. Rumbling and gurgling are marked at times. There is usually a history of long standing constipation, and the frequent use of cathartics and large enemas over a period of years. Physical examination frequently reveals a colon which is palpable as a cord-like structure practically throughout its entire extent. It derives its name "ropy colon" from this observation. It is usually very tender to pressure, and this finding leads to mistakes in diagnosis when the examination is limited to one area and is incomplete. The leucocyte count is normal and there is no temperature or rigidity. The patient is nervous about his condition and headaches are often associated with this. This is the type of case which when operated on for right-sided pain develops the same old distress in the appendix or gall bladder area, and is told that he has "adhesions" and at times re-operated on, only to have a recurrence.

The above history and group of symptoms are quite typical of this irritation of the intestinal tract. The symptoms of an acute gall bladder or of an acute appendix are usually rather clear cut so that with the type of abdominal distress, rigidity, leucocyte count, temperature, etc., the diagnosis may be accurately made. However, the diagnosis of abdominal conditions is not always so simple. One must keep all the possibilities in mind from the beginning to the end of the period of observation—in the meantime carrying out procedures which will be of the least risk to the patient.

When a diagnosis has been made of an irritation to the intestinal tract, it would seem logical that some type of therapy which is soothing

in character is indicated. The principles underlying the management would then be to:

First: Stop all cathartics and large enemas;

Second: Explain to patient that immediately following withdrawal of the cathartic there may be no bowel movement for from two to three days and that this is desirable, rather than otherwise.

Third: Supply a diet adequate to produce a normal formed stool. This diet should be rather high in cellulose content but relatively non-irritating from the chemical standpoint.

The bulk necessary to produce a formed stool varies with the individual and no hard and fast rule can be given, but in general two or three coarse vegetables with potatoes once daily will be sufficient. However, at times, such a diet will produce mushy stools, indicating an overstimulation of the colon and the bulk will need to be reduced, or if hard stool results, the bulk will need to be increased. In the latter case, while additions are being made to the diet, a glycerine suppository, a three ounce oil retention enema or a four to six ounce warm water enema may be used to get rid of the hard material.

Fourth: Heat to abdomen, being careful not to produce stimulation by extreme degrees. (The principle of all the treatment being soothing).

Fifth: As to drugs—tincture of belladonna for its relaxing effect.

CONCLUSIONS:

There are many other factors to be considered in the production of abdominal distress but I have attempted to bring out only one group and this one firstly, because of its predominance and secondly, because of its response to medical treatment.

The sooner we stop these irritating procedures to the intestinal tract, the fewer patients will turn to Christian Science or to the Chiropractors, because when they turn to them they stop taking their physics and quit worrying about auto-intoxication and begin to live physiologically as far as their gastro-intestinal tracts are concerned.

Coincidentally—because the irritation has been stopped their abdominal distress disappears and the cult has made a new convert.

Finally, much as we owe to our surgical colleagues for the advances in our knowledge of the symptoms and diagnosis of abdominal diseases, please remember that we have twenty-five feet of intestine and only two inches of appendix so let's give them a place in our differential diagnosis of abdominal distress.

122 South Michigan.

THE DIAGNOSIS AND TREATMENT OF NON-SPECIFIC ULCERATIVE COLITIS*

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The early diagnosis of ulcerative colitis offers great difficulty, but its recognition is of paramount importance for successful treatment of this very resistant condition. The non-specific form of ulcerative colitis is very frequently confused with many other intestinal disturbances, and it is only by careful consideration of the clinical picture and exhaustive laboratory study, proctoscopic and x-ray examinations, that an early diagnosis is possible.

In presenting this paper I am using one of our 18 cases as a typical example of the usual clinical picture to illustrate our diagnostic and therapeutic procedures, and also to use this as a basis of a differential diagnosis.

Mrs. K, white, aged 38 years, consulted us on January 11, 1923, complaining of pain in the abdomen, bloody diarrhea, loss of weight, weakness, nervousness and headaches. She stated that in July, 1921, she had attacks of diarrhea followed by periods of constipation. The stools were first watery and soft, but later became hard and firm. After persisting for three months, she was free from symptoms, but the diarrhea reappeared again in July, 1922. This recurrence was more persistent, and the diarrhea lasted three to eleven days, and was followed by constipation for two to three days. The necessity of catharsis caused a reappearance of the diarrhea.

At the time of consulting us bright red blood and mucus were noted in the stools. The pain was severe and cramp-like, with tenesmus. A bowel movement brought temporary relief, leaving a dull sore ache in the abdomen. The pain at times was so sharp that it made her cry out. It was situated apparently along the course of the colon. There was no nausea and no vomiting. Food eaten seemed to pass immediately onward and aggravated the diarrhea. She had lost twenty pounds in six months. She was very weak and was fatigued by the least exertion. Headaches, vertex and occipital in type, were frequent and lasted twelve to twenty-four hours. She was very nervous, easily excited and perspired easily. There was no cough, nor night sweats, but she felt flushed at times. There was some palpitation. There was no shortness

*Read before the Section on Medicine, Illinois State Medical Society, Champaign, May 18, 1926.

of breath. Her appetite was fair and there was no nocturia.

Her husband was living and well. She was married 11 years, she had three children, two living and well, one died in infancy of unknown cause. She had had no miscarriages. There was no family history of carcinoma, tuberculosis or diabetes. Her menstrual history was normal, but of late it was scanty and irregular, and had been absent for three months. She had had measles, frequent sore throats without rheumatism, and pneumonia and pleurisy of six weeks' duration as a girl. She had had a hemorrhoidectomy some years ago, but otherwise no operations. She was active, selpt fairly well, drank coffee to excess, and occasionally used wines.

The physical examination revealed a well developed but somewhat emaciated white female, about 40 years of age. Her temperature was 99.2, pulse 110, and respirations 24. She appeared pale, as noted, especially in the conjunctivae and mucous membranes. The eyes reacted normally, but had slight extrinsic muscle weakness. There were some carious teeth; the tonsils were enlarged and hypertrophied. The tongue showed no evidence of marginal atrophy. The thyroid gland was moderately and uniformly enlarged, and the cervical lymph glands showed enlargement. She had a fine tremor of the hands and tongue, and the deep reflexes were increased. The lungs were normal except for a slight lagging of the left side. The heart was slightly enlarged, with a mitral systolic murmur. The blood pressure measured 142 systolic and 80 diastolic. The abdomen was retracted and flaccid, with marked tenderness over the region of the sigmoid, less over the appendiceal and gall bladder regions, and none in the epigastrium. The spleen and liver were not palpable. The extremities were normal, with no demonstrable edema. The vaginal examination was negative.

The urine was essentially negative. The stool was liquid and mushy, containing macroscopic blood and mucus. Microscopically there were numerous pus and red cells, some undigested muscle fibre, fat and starch. Stained smears revealed numerous gram positive cocci in pairs and short chains, with some tendency to form capsules, and, in addition, the normal flora was present. There was no evidence of amebae in fresh, warm stools nor in stained smears. Likewise, there was no evidence of tubercle bacilli. The isolated cocci fermented all the usual sugars, except that they did not ferment mannite nor innulin. The stomach acids were 20 free and 25 total in the motor meal, with no evidence of retention, and 35 free and 40 total in the Ewald meal, and there was no occult blood in either specimen. The blood count revealed 70 per cent HB (Sahli), 3,200,000 reds, 10,200 whites, with a differential of 25 per cent mono's, 74 per cent poly's, 2 per cent eosin's, 3 per cent tran's, and 1 per cent baso's. The Wassermann test was frankly negative, with three antigens. The agglutination test for all of the main types of B dysentery was negative, and no dysentery organisms were found in the stool. The von Pirquet test was negative, even at the end of 72 hours. Her blood belonged to group 2 of the Jansky classification (a procedure which we consider of great importance in event transfusion may be required).

Proctoscopic examination showed a diffuse inflammation of the rectum. The mucous membrane was hyperemic, edematous and bled easily. There was a seropurulent exudate, and shallow, irregular ulcers, which seemed to coalesce, appeared higher up. There was no evidence of stricture formation. The microscopic examination of excised tissue was as follows: Sections taken through the rectal tissue revealed an intact mucous membrane except in a few areas, in which there was superficial ulceration. There was a diffuse infiltration of the polymorphonuclear leucocytes throughout the mucosa and submucosa. The epithelium lining the glands was well defined, and did not suggest a malignant change. In addition, there was a diffuse infiltration of eosinophiles in the mucosa. There was no evidence of similar cells in the muscularis. There was no evidence of malignancy or of tuberculosis.

The x-ray examination of the chest revealed the left complementary space partially closed, the right lower lobe hazy, but the lungs otherwise were negative. The heart was slightly widened in the transverse diameter, the stomach and duodenal bulb were normal. The 12-hour barium meal showed a moderately spastic bowel, especially over the sigmoid region, which was markedly tender. No tenderness was elicited over the appendiceal or gall bladder regions. Observation at the end of twenty-four hours revealed an almost completely emptied bowel. With the barium enema the rectum was highly spastic, with no definite evidence of a filling defect. The sigmoid was smooth and rope-like, the rest of the bowel filled out well, including the cecum. There was an incompetency of the ileo cecal valve, and rapid surging was noted. Plates confirmed the fluroscopic observation, showing absence of the haustral markings, with irregularities of the walls of the sigmoid and rectum, giving a "moth eaten" appearance. There was no evidence of stricture formation.

The laboratory tests excluded bacillary dysentery because of the absence of specific agglutination and organisms. The absence of amebae on repeated search helped to rule out amebic dysentery. The extent and type of the lesions were incompatible with a malignancy. The negative Wassermann in the presence of active lesions excluded syphilis. The lack of involvement of the cecum and the microscopic tests excluded a tuberculous ulceration. Likewise, actinomycosis was ruled out. The presence of free HCL in the gastric content and the secondary anemia with no changes in the red cells excluded pernicious anemia. Therefore, a diagnosis of non-specific ulcerative colitis was made with the above findings, and because of the clinical picture with the pathology beginning in the rectum or lower sigmoid and spreading upward. The disease may involve the entire colon. Often the bowel wall

becomes infiltrated with scar tissue, and is greatly thickened, resulting in permanent narrowing with entire loss of haustration, and the development of localized strictures. There may be an active lesion in one part and less active in others, and spasm and true stricture may be present in the same patient.

In the treatment of so obstinate a disease, some essential factors must be borne in mind. First and foremost, foci of infections must be eradicated. Bargen has recently shown that typical lesions resembling those seen in ulcerative colitis can be reproduced in rabbits, with injections of cultures made from abscesses of teeth and exudate from tonsils taken from patients suffering with this disease. In our experience we have not seen a single recurrence after removal of foci of infection. Secondly, a patient must be given a high caloric diet. Two main ideas dominate the choice of diet, namely, the avoidance of cellulose bearing fruits and vegetables that encourage intestinal activity, and the avoidance of foods which may give rise to intestinal flatulence. As a rule one sees no disadvantage from a general, rather full diet. It is necessary to withdraw raw fruits and green cellulose vegetables, particularly the skin and core of fruits. Pureed vegetables and stewed fruits are recommended. Orange juice and lemon juice are not contraindicated and are even beneficial. If "gas pains" are troublesome, it may be desirable to reduce the intake of milk, for milk, in some patients, gives rise to intestinal flatulence. Similarly, one may restrict the intake of excessive amounts of carbohydrates in the form of starchy tubers (potatoes and squash) of fresh bread and vegetables. The necessity of restricting carbohydrates has been emphasized by Ad. Schmidt; he aims particularly to exclude the more poorly digested vegetable starches. No one steadfast rule can be given as to the exact diet, because the individual peculiarities of the patient must be taken into account; but in general the diet should be one containing all the food factors as well as the vitamin containing substance. Some milk is always desirable, heated and unheated, because it is an ideal food, but in cases of marked tympanites, excessive quantities of it and other carbohydrates should be eliminated. Care must be taken not to limit the diet too much, as has been observed by Crohn and others. Xerophthalmia has resulted from the deficiency of fat soluble vitamin A from the dietary regimen.

The total caloric intake should more than supply the patient's need. It must be remembered that in this disease there is a very rapid peristaltic action, which interferes with digestion and does not allow time for absorption. Hence the rapid loss in weight. The feedings should be frequent and of small amount, with enough fluids to compensate for the marked excretion of fluids.

Thirdly, there is necessity for physiological rest of the bowel. This is accomplished by a non-residue diet as indicated, and by putting the patient to bed. Some workers believe it is not essential, but we believe in the acute stage or in the exacerbation of a chronic stage, it is necessary. The patient should have heat applied to the abdomen, in form of stupes or Priesnitz compresses. These give at times great relief to the patient. Baking, in the form of electric appliances, directed over the course of the colon, has been used. These measures give at times symptomatic relief.

Finally, the medical treatment is of definite value. I will divide this into two stages. First, the treatment of the active stage, and second, the treatment of the inactive stage.

In the active stage we have used bismuth subcarbonate and kaolin in large doses by mouth. These cause an amelioration of the diarrhea with relief from the constant urge to go to stool. If the symptoms still persist, opiates are resorted to. Care must be taken not to check the diarrhea too suddenly, because undesirable gas pains and tympanites arise, and the patient may prefer the urgency of the frequent movements rather than suffer the abdominal colic. The opiates are the best sedative for intestinal peristalses, and when used in the form of the tincture, in small doses, it diminishes without halting the intestinal motility, and thus avoids the undesirable "gas pains." Logan has shown that tincture of iodine in ten m. doses three times a day has had beneficial and curative value.

In our experience B acidophilus has been of distinct value, either given in the form of milk or pure culture, or, as we shall later mention, in the form of intestinal implantation. If one can procure a viable and stable culture, this organism is an important factor in inhibiting the growth of other organisms. We aim to have the stool

flora 60-80% positive for bacillus acidophilus. Occasionally acidophilus milk may be too laxative, then the broth culture itself should be substituted. We give 6-8 ounces of the milk three times a day, one-half to one hour before the three main meals, thus avoiding the action of gastric secretion at the height of digestion. By frequent cultures and smears we are very careful to note continually the changes in the flora. We have had a large experience with these organisms in this and other bowel and systemic disturbances, and consider it of distinct value. The culture must not be too acid, and not too old, to ensure proper therapeutic results.

Locally, our treatment is divided into two parts; topical applications and general irrigation of the whole bowel. Innumerable drugs have been used and advised, such as silver salts, permanganate of potash, zinc sulphate, iodin, mercurochrome, etc. Each one has its ardent enthusiast. One must not forget that anything that is in sufficient concentration to be bactericidal may cause so great a local reaction as to make it undesirable and irritating rather than healing.

Of late we have been using neutral acriflavine with beneficial results. We formerly used chlorizine in very high dilutions, with good results. We have also noted beneficial results from collene, a proprietary colloidal silver. But neutral acriflavine in aqueous solution has given us our most lasting results. It is nontoxic and has a rapid diffusibility and permeability. Crohn has reported definite results with it. We begin with a 1-4000 dilution, as a retention enema, using 500-700 c. c. two times a day. The patient lies on his left side, thus allowing contact of the diseased area with the solution. Later, as the symptoms abate, as they usually do, towards the end of the first week or beginning of the second, we reduce the irrigation to once a day and increase the strength of the solution to 1-3500, and later to 1-3000. If there is an excess of mucus then we may have to resort to less frequent irrigations and weaker solutions. When the temperature is normal, and the diarrhea less, the irrigations are given on alternate days. This treatment is continued until the diarrhea has ceased. Then weak soda bicarbonate (0.5%) irrigations are used on intervening days, the weak alkali tending to increase the antiseptic action of the dye. This treatment is continued until frequent proctoscopic and sigmoidoscopic examinations clearly indicate the disappearance of all the ulcerative lesions and a return to normal. Occasionally scarring and stricture formation occur in the rectum and anus, but they are rare in the large bowel. The acute cases subside in a few weeks, the chronic ones are more protracted. Finally, the patient returns for ambulatory treatment at the office, with a special irrigation apparatus, which allows the passage of a long tube completely throughout the whole bowel, up to the cecum. In this manner all of the pockets are cleaned and irrigated, various antiseptic solutions instilled and implantations made of the acidophilus bacillus up to and near the cecum. This is kept up until we are reasonably certain the case is cured, and the patient reports back at infrequent intervals for observation and irrigations.

Bargen of Rochester has recently reported a group of cases in which there has been 80% improvement in the symptoms of patients suffering from ulcerative colitis. His method of therapy consists of giving increasing doses of a vaccine of Berkefeldt filtrate. By this method he has been able to show definite improvement both clinically and pathologically in his cases of ulcerative colitis. I have tried this method out in three cases during the course of the last year, and have found it very beneficial. A longer period of time must necessarily elapse before any definite conclusions can be drawn as to its efficacy, but through personal observation of both Bargen's results and my own, I feel that this vaccine filtrate therapy may offer great possibilities.

In 1921, Dr. Arthur Hurst suggested that antidysenteric serum might have, even in this nonspecific form, some therapeutic value. He had used the serum intravenously in large doses (40-100 c. c.) in two cases, and reported rather striking results in both cases.

Einhorn tries to avoid operation by the use of the joined intestinal tube. When the tube reaches the cecum, it is left in place for two or three weeks, and is used merely for the purpose of treatment. Nutrition takes place by mouth in the usual way.

We have used in cases where there was slight agglutination for any one of the B dysenteriae organisms, mixed vaccines of the three common types, in addition to the other therapy. We have also given cases hypodermic injections of emetine hydrochloride from grains ¾ to grains 1½.

daily for seven to ten days, purely empirically; but these methods have only been used where the patient has not done well under the former management. We have now treated eighteen cases; the oldest case is 6½ years, and the latest is six months. In all but one case there has been complete recovery, and in this the patient was unable to stay in the city to carry out the course of treatment. She has been following our treatment under another physician, and the last report from her stated that she was up and about, and following out her normal routine of life.

It is very gratifying to observe the improvement in the clinical picture of these patients, and to see the ameliorations of symptoms and their ability to assume their normal routine duties of life.

If the case is a long and protracted one, that is, averaging from six months to many years, the results may be less striking. If, after thorough medical management there is no improvement, surgery must and should be resorted to. The cases that usually go to operation are, as a rule, poor surgical risks. If a patient, after a fair and impartial trial, has not improved, surgery should be resorted to without too long a delay. The fatal results from surgery have been due to the poor condition of the patient, due to the procrastination of the medical men.

Of the surgical procedures, appendicostomy is the simplest. This is used by most men for irrigation. Results with it are usually not satisfactory, and it is inefficient in the treatment of the severe cases. The greatest factor in ameliorating the symptoms of these severe case lies in shunting off the intestinal current from the diseased bowel. Flushing out the bowel through the appendicostomy is helpful, but absolute rest for the colon and prevention of contractions, peristalsis and irritation are of more importance, and can be accomplished only by ileostomy. Blood transfusions and glucose intravenously frequently have to be used to build up the patients who are usually markedly weakened, cachectic, dehydrated and anemic.

A certain proportion of the patients are not markedly benefitted by ileostomy, for after a slight improvement they come to a standstill. Discharge of pus and blood from the rectum continues to some extent with chills, and fever occurs at varying intervals. Arthritis of varying severity may be present, due to absorption from the colon, and a mild degree of chronic sepsis may persist. Something else must be done for these patients. An ileo sigmoidostomy is helpful in cases involving the transverse colon, with no involvement of sigmoid and rectum, and as a last resort, a partial or total colectomy is advisable.

DISCUSSION ON PAPERS OF DRS. LAING AND PORTIS

Dr. James Mason, Urbana: After listening to so perfect a paper that has gone so exhaustively and scientifically into the subject, I shall certainly not take much of your time.

It has been a great pleasure for me to listen to this paper by Dr. Portis. He has discussed a subject old in the annals of medicine, one in which the internist and abdominal surgeon and the specialist must always be on the lookout.

To many of us he has handled it in a new way. To others it is the old wine in a new vessel. To me absolute rest, fresh air, sunlight, diet, local and topical applications properly selected, are the basis for rational treatment.

Dr. Portis' paper is an eloquent rebuke to that method of treating cases that many of us drop into that is parrot-like in nature. In our chronic forms of trouble we are apt to develop some rather skillful line of treatment and follow it and get into a rut. His paper is a very eloquent rebuke to such sort of treatment. I am very sorry to say that some people are prone to take this form of treatment in the chronic forms of trouble.

In the matter of diagnosis in some patients especially, I would like to mention a feature about this sort of trouble that is sometimes noticed. There is a syndrome of nervous symptoms quite often noticed in women patients. There is a sympathetic condition of the colon which causes this, not so much in the ulcerated type as is true in the mucous colitis.

As was said by one eminent writer on this subject, a woman who had a colitis of this type could count herself lucky if she was not subjected to one or more abdominal sections for tubal or ovarian or uterine trouble.

The treatment mentioned by the essayist I have not used. I am certain of its efficacy and I shall be very glad indeed to make use of it in work of this sort. The method is to use agents which will cleanse the bowel, the mineral oils, the use of an agent that cleanses from below and then follow by an installation of either plain olive oil or any type of bland oil. But I think better still have been my results when I have incorporated one or two per cent ichthyol in this oil.

This line of treatment has to be persisted in for a long time. The patient may think after six weeks or two months that they are still only to have a recurrence of their trouble after some months of the same diarrhea with the bloody stools. Whatever line of treatment is adopted we must remember that we are

dealing with ulcer, an ulcer that is a back lash of some sort of systemic disturbance.

The thing I want to stress most in the discussion of this paper is the excellence of the points brought out in the local handling of the ulcer. The surgery of this type of case to my mind should be left, as the essayist said, as a last resort. If you do a colotomy you may cure your ulcer but you may have an artificial anus, which is not so simple after all.

Dr. Sidney A. Portis, Chicago (closing): I am sorry that I did not have time to enlarge on several points in my paper, but this will appear in the printed paper.

We have had no experience at all with the use of oil in the treatment of ulcerative colitis. We have found that the use of ichthyol is very irritating to the bowel, and because of this irritation, even when mixed with oil, we have ceased to use it. I think that the reason that many patients die from ulcerative colitis is due to the fact that all of us do not realize we are dealing with a patient who is very sick. This disease is comparable in its later stages to a marked thyrotoxicosis. The patient has to be watched at all times, and as I have previously said, suitable donor or donors should always protect the patient. Intravenous blood and medication should be resorted to at the first ominous sign. These are very often life-saving measures.

I want to thank the doctor for his very kind and thorough discussion of this paper.

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RADIUM IN UTERINE HEMORRHAGE AND FIBROIDS*

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Probably the greatest field of usefulness for radium therapy today is in gynecology. The several pathologic conditions of the uterus to which radium can be applied with marked success are hemorrhage (types given below), fibroids, endocervicitis and carcinoma.

Any competent physician with the aid and advice of an experienced radium therapist can personally apply radium in the majority of uterine conditions amenable to radium treatment. There is nothing mysterious or difficult in the method or manner of making the radium applications. The necessary requirements are accurate gynecological diagnosis, surgical cleanliness and a careful interpretation and application of definite instructions. Hundreds of general practitioners have applied radium successfully in uterine conditions with very satisfactory results. Radium is, however, an extremely powerful substance and much harm could be wrought if improperly used. Physicians should attempt its application only when directed by an experienced radium therapist.

Indications for Radium. The success of radium therapy in uterine diseases, like every other form of therapy, depends primarily upon an accurate diagnosis being established. A careful gynecological examination should first be made in order to ascertain correctly the pathology present and the condition of the adjacent parts.

Radium is indicated in the great majority of cases of non-malignant uterine bleeding (menorrhagia and metrorrhagia) with the exception, as a rule, of those due to abortion or pelvic inflammation. Bleeding from non-malignant growths, fibroids, and from so-called "uterine insufficiency" (myopathic, idiopathic, simple or essential hemorrhage) forms a large class in which radium is of great benefit. In cases of menopausal or pre-menopausal menorrhagia, in which no pelvic pathology is demonstrable, radium is particularly effective. Radium is indicated in chronic metritis, uterine fibrosis and subinvolution, all of which have much in common. It is the ideal treatment in cases of small multiple fibroids with severe hemorrhage.

Contra-indications for Radium. Large doses of radium are contra-indicated in women under forty (40) years of age. In young women, non-radiation methods are preferable, and when impossible, *small* doses of radium are frequently effective, but should be applied with the *utmost* care. (Puberty hemorrhage is a definite indication for radium and can invariably be controlled by such treatment.) Radium should not be used when any acute pelvic inflammation is present. Surgery is indicated in definitely pedunculated fibroids, very large fibroids (size of 5 months' pregnancy), and when associated pelvic pathology is present, but these patients can usually be rayed with benefit, if operation is impossible.

TECHNIQUE OF RADIUM APPLICATION

The technique of applying radium in the uterus is comparatively simple. We prefer an applicator which consists of a piece of rubber tubing with a blind end, and inclose the brass capsule,

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containing the radium in this end of the tubing. A short cross-arm rubber piece is placed on the applicator (Fig. 1) and fits snugly against the cervix when the portion containing the radium is introduced into the body of the uterus. (Fig. 2.) When gauze is packed against the cross-arm rubber piece it will hold in position. This does away with the necessity of stitching the applicator to the cervix to maintain its position. The applicator is semi-rigid, due to the fact that there is a heavy wire attached to the capsule containing the radium (inside of rubber tubing). This greatly facilitates ready insertion of the radium and at the same time permits the applicator to be bent to conform to the direction of the uterine canal.

Fig. 1. This illustrates a typical radium applicator for use in the body of the uterus. It is a piece of rubber tubing the thickness of a lead pencil and the radium, inclosed in a brass capsule, is tied in position in the end of the tubing. The cross-arm piece fits against the cervix and holds the tubing in position when gauze is packed against it.

The patient is given several thorough cleansing enemas and a douche. Following this the cervix is dilated sufficiently to introduce, under aseptic precautions, the radium applicator. A little K-Y jelly placed on the end of the applicator will facilitate ready insertion. It is well to determine the length of the uterine canal by means of a sound and adjust the cross-arm piece on the applicator so that when the radium is in the *body* of the uterus, the cross-arm rubber piece fits snugly against the cervix. Following this, the entire vagina, including the anterior and posterior fornix, is packed with gauze. This is done carefully, the purpose being to keep the radium in position while holding the bladder and rectum *away*. These parts are quite sensitive to radiation. If the packing is thoroughly done it requires about ten yards of two-inch gauze. The patient is kept in bed the *entire* time and catheterized every six hours if unable to void. The duration of the treatment depends upon the amount of radium used, the age of the patient and the pathologic condition treated.

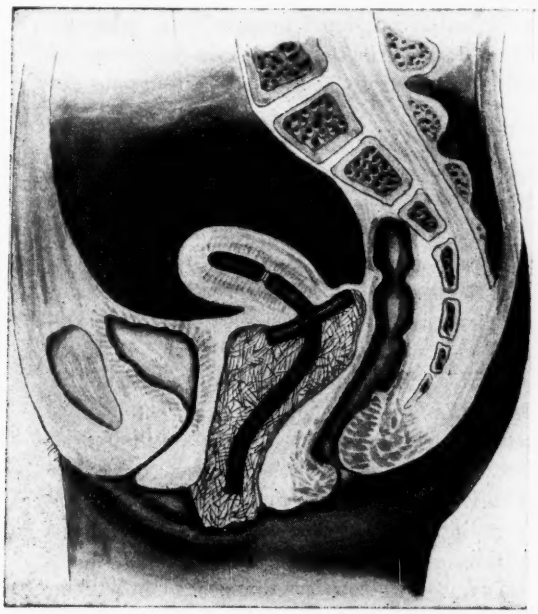

Fig. 2. This illustrates how the radium applicator appears when properly placed in the uterus in patients with uterine hemorrhage, fibroids or carcinoma of body of uterus. The applicator is maintained in correct position by voluminous gauze packing.

The patient, as a rule, is permitted to be up at the conclusion of the radium treatment unless the bleeding is profuse. A simple non-irritating vaginal douche (daily) is advised for about a month after the treatment.

If it is thought desirable, a curettement may precede the radium insertion. In women over

35 years of age this should be done as a diagnostic measure to rule out the possibility of malignancy as the cause of hemorrhage.

Dosage Depends on Age of Patient. One of the most important points in the treatment of uterine conditions with radium is the proper dosage. Large doses of radium are practically certain to influence the ovaries causing sterility and early menopause. To protect a patient from permanent sterilization, 500 milligram hours of radiation is considered the maximum exposure. (This dosage is obtained with 50 milligrams of radium applied 10 hours, or 25 milligrams for 20 hours.)

When the patient is *under* forty (40) years of age, the dosage applied must be small (500 milligram hours or less), in order that the menstrual function with the resulting ovarian secretion be preserved.

If the patient is forty (40) years or more, the preservation of menstruation is no longer a serious consideration and much larger doses are permitted. In the majority of these patients the production of the menopause, with complete cessation of all uterine bleeding, is the desired effect. This is usually accomplished by an application of 1200 milligram hours (50 milligrams of radium for 24 hours) which is considered a castrating or sterilizing dose.

The above dosage is recommended in patients with non-malignant uterine bleeding and fibroids. When a malignancy is present much larger doses are required to control the condition (2400 to 3000 milligram hours).

RESULTS OF RADIATION

When the smaller doses of radium are administered to women under forty years of age, the results are not so certain as those obtained by the larger doses applied to older women. In the first mentioned group, at least half are controlled by one treatment, the remainder requiring one or more additional treatments. If radium is used shortly before the expected menstrual period, the bleeding may be more profuse than usual and the next two or three periods absent. Six (6) weeks or more should elapse before an additional treatment is considered.

In women forty (40) years of age or more, the results from radium treatment are extremely gratifying. About 90% will be completely relieved with one application of the so-called sterilizing dose. A small percentage will require a second treatment, but this should not be considered until at least eight (8) weeks have elapsed. Patients that do not respond to two or three sterilizing doses of radium should be regarded as suspicious of malignancy.

Nausea is sometimes present during the time the radium remains in the uterus, but usually disappears within a few hours after removal.

Hemorrhage is either relieved immediately after treatment or gradually diminishes and stops entirely in about a month. In some patients the menstrual period which follows the treatment may be even more profuse, due to the congestion attendant upon the radium application. When large doses of radium are used, one or two menstrual periods may occur before complete amenorrhea takes place. A watery discharge or persistent leucorrhea may appear for some weeks after treatment. This is caused by the local reaction of the radium, and gradually subsides. It is usually so insignificant that, unless the patient's attention is called to it, she makes no complaint. There is a gratifying sequel—a persistent leucorrhea is frequently cured by the treatment.

In fibroids, the reduction in size depends upon the structure of the tumor. If the growth is chiefly fibromatous, only a slight reduction may be anticipated. If it is chiefly myomatous, (most common type) definite shrinking is observed—nearly half the size in three months and in six months, small growths will scarcely be palpable and larger ones are further reduced but produce no symptoms. If a fibroid does not recede, calcification or marked fibrosis should be suspected. It is well known that fibroids rarely, if ever, increase in size after the menopause has been established. Therefore, in patients past the child-bearing age and nearing their climateric, a premature induction of the menopause can invariably be accomplished by radium application.

Fibroid patients should be examined at monthly intervals and as long as the progress is satisfying further treatment is unnecessary. If conditions are not clearing as rapidly as is thought advisable a second treatment can be given in two months. In patients that have been depleted by excessive hemorrhage, radium may be employed to check this symptom. Then the

patient can be operated on in one or two months if such a procedure is desired.

RADIUM VERSUS SURGERY

Radium should not be looked upon as a competitor of surgery in gynecology. The best proof of this is the fact that it is constantly being used and is the method of choice of many of the foremost surgeons and gynecologists, in certain uterine conditions. It is far better that both radium and surgery be regarded as useful methods in the cure of certain uterine conditions and intelligent selection, based upon careful consideration of the peculiarities of each case, should determine which is to be used.

Radium is one of the most valuable additions to the gynecologists' armamentarium today. It has enabled him to manage without operation a large percentage of uterine diseases. It is usually much easier to persuade a patient to submit to a simple procedure such as the application of radium, than to gain her consent to undergo a major operation. Many women, from fear of the knife, suffer from some type of uterine condition and postpone consulting a physician until wrecked mentally and physically. With a better understanding of the wider use of radium, fewer women will be ordered to a hospital for what is considered a serious operation. The knowledge that a simple radium application will offer relief, where a mutilating operation was indicated only a few years ago, should make women anxious to consult physicians early.

The advantages of using radium in these patients compared to surgery are:

1. There is no operative mortality.
2. Usually, a general anesthetic is unnecessary, hence there is no shock.
3. Properly applied, there is no infection or hemorrhage nor other post-operative complications.
4. The patient is not confined to the hospital for a long period of convalescence.
5. Should radium fail, operation is always possible.
6. The menopause symptoms are not so marked. (Menopause only occurs when large doses of radium are given.)
7. Radium can be used when surgery is feared, as when heart disease, extreme anemia, tuberculosis, diabetes, or chronic nephritis exist as a complication.

CASE REPORTS

The following briefly reported case reports are typical of the results secured from radium in these conditions:

Case 1. *Uterine Hemorrhage from Probable Fibroids.*

Age 45; married; heart lesion with dilatation; hemoglobin 70 per cent.; very neurotic; urine, no albumin or casts; Sp. gr. 1012; blood pressure 160-65; bimanual examination shows moderate uterine enlargement with retroversion and adherent to left side with no palpable mass on either side. History of menses every two weeks for one year, soiling 15 or more napkins each day for 4 or 5 days and less for balance of week.

Fifty (50) milligrams of radium was used for 24 hours. The patient menstruated lightly twice after the treatment, after which complete amenorrhea occurred. In two months she had gained 12 pounds and was much stronger. Eight months after treatment the uterus appeared normal in size, the patient having gained 20 pounds. She had completely regained her health. When last seen 13 months after the radium treatment she was enjoying good health, menstruation was still absent and she was "very well satisfied."

Case 2. *Menopausal Menorrhagia.*

Age 45; had never been married, had been in ordinary menopause for two years. For nine weeks had been flowing constantly. Vaginal examination possible with child's speculum. Hymen unruptured. Clots in vagina; cervix slightly enlarged; redundant mucous membrane protruded from cervical canal. The body of the uterus was somewhat enlarged and very much retroverted. Mother died of cancer.

Fifty (50) milligrams of radium was used in this patient for 24 hours. This resulted in complete amenorrhea. Six months following the treatment the cervix was absolutely normal, being firm and normal in color. The adjacent parts were normal. The patient was gaining in weight and her general condition splendid. Nearly two years after the treatment, and when last seen, the patient was still entirely recovered and had no flow of any kind.

SUMMARY

Radium therapy is without doubt the treatment of election in a large percentage of cases of uterine bleeding and fibroids. Instead of allowing patients, in need of this special therapy, to drift or delay, the family physician today is either administering the radium himself (under supervision of an experienced radium therapist) or is promptly directing his patient to a qualified specialist. The technique of radium application in gynecology is simple and can be satisfactorily handled in the majority of instances by the general practitioner. Many of these treatments can be given in the patient's home (if necessary) without an anesthetic. Therefore ethical

physicians can (in locations where competent radium therapists are unavailable) introduce the use of radium into their professional work and, under proper supervision, apply radium in many conditions amenable to radium therapy.

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NEWER KNOWLEDGE CONCERNING NEPHRITIS*

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The term "nephritis" is in a way a misnomer, because the conditions referred to under that name are essentially general diseases affecting the entire body as well as the kidneys. Nephritis is not a single disease. There are a number of forms which differ so completely in their etiology, pathology, symptomatology and treatment, as to constitute separate and distinct diseases. During adult life mixed forms occur, but during childhood nephropathies occur in simple and clear cut form, and can be studied readily before complications have developed which obscure the clinical picture.

In this paper, I wish to summarize briefly the results of an intensive study of the different forms of nephritis, which have been carried out during the past few years at the St. Louis Children's Hospital. The two common forms of nephritis will be considered: 1, parenchymatous or tubular, in which there is an alteration of the physical chemistry of the body and a change in the permeability of the cells; and 2, glomerular or hemorrhagic nephritis in which there occurs damage to the smaller capillaries throughout the body. Both of these forms of nephritis are due primarily to infection, and both are progressive so long as the infectious cause remains. With removal of the infection, complete recovery from parenchymatous nephritis may occur and the further progress of hemorrhagic nephritis may be arrested.

PARENCHYMATOUS NEPHRITIS

The symptoms of parenchymatous nephritis come on insidiously. There may be a history of chronic rhinopharyngeal infection with an acute exacerbation preceding the onset. Edema develops gradually and ultimately becomes general and marked. At the same time, the urine decreases in amount, becomes dark colored and of high specific gravity. Large amounts of albumin and casts are present but *no blood*. Chlorides are diminished or absent from the urine.

A secondary anemia rapidly develops. Not only are the red blood corpuscles and the hemoglobin of the blood low, but the serum protein and blood volume diminish. The chorides of the blood plasma are lower than normal. There is no elevation of the blood pressure and no changes in the eye grounds or in the capillaries of the body. Phenolsulphonephthalein excretion is approximately normal. Neither acidosis nor true uremia occurs.

Pathologically the kidneys are large and white. Microscopically there is a degeneration of the cells of the renal tubules without changes in the glomeruli or interstitial tissues.

The changes occurring in the kidneys are not in themselves sufficient to account for the symptoms observed. There is, as a matter of fact, no true renal insufficiency. On the other hand, removal of both kidneys fails to lead to the characteristic symptoms of parenchymatous nephritis. There is evidence of widespread changes throughout the body independent of the renal changes. There is retention of fluids and salts in the tissues to an abnormal degree. The salts and fluids are removed from the body by the tissues and not held back by the kidneys. The kidneys still retain the power of excreting fluids and salts. If a tourniquet is placed around the arm of a patient with parenchymatous nephritis, fluids pass out of the blood and into the tissues, whereas, in normal individuals the passage of fluids is in the opposite direction. There seems to be a general change in permeability of vessel walls and cells.

It has been shown by Clausen, working in our clinic, that there exists in the blood of these patients a substance capable of changing the surface tension of the blood and leading to changes in permeability. This substance was found in all cases of parenchymatous nephritis, both in the blood and in the urine. The substance in question not only changes the permeability of blood vessels, but also that of the renal tubules, so that albumin pours through from the blood into the urine. The substance in question may be readily detected by the simple method of determining the surface tension by weighing a

*Read before the Section on Medicine, Illinois State Medical Society, Champaign, May 19, 1926.

number of drops of serum falling from a special pipette.

The next question which arises is as to the origin of this peculiar substance in the blood. In our series of cases, infection has been invariably present and with subsidence of the infection the active substance has disappeared from the blood and urine and at the same time the edema and other symptoms of nephritis have also subsided. The most common location of the infections has been in the nasal accessory sinuses, especially in the maxillary antra. The infecting organism has usually been a hemolytic staphylococcus. The evidences of infection have not always been apparent. There may have been no fever and only an indefinite history of head colds or mucopurulent nasal discharge. In some cases, without symptoms of local infection, roentgenograms have revealed clouding of one or both antra and in other cases the diagnosis has been made only after antral irrigation.

On draining such infected areas, there has usually been a prompt remission of the symptoms of nephritis and, in cases which the foci were entirely cleared up and no reinfection occurred, there has been a complete restoration of normal conditions in the body. The edema has disappeared and the urine has become normal in character. In cases which we have followed for a number of years, there has remained no demonstrable evidence of nephritis. Reinfection, however, is likely to bring about the recurrence of all the symptoms.

In a few instances we have observed parenchymatous nephritis to occur as a result of staphylococcus infection elsewhere in the body, than in the nasal accessory sinuses. We have observed it following osteomyelitis and staphylococcus skin infections. It is our belief that infection leads to the production of the toxic substance which in turn damages the cells throughout the body, including those of the renal tubules. Treatment in any case should therefore first be directed to the source of infection; for, if this is not treated, other therapeutic measures will offer no more than temporary symptomatic relief. Water restriction, purging and a low protein diet lower the resistance to infection and accomplish nothing so far as a cure of the condition is concerned.

The diet of these patients should be one relatively high in proteins, as there has been much loss of albumin by way of the urine and the patients are invariably anemic. Children should have 2½ to 3½ grams of protein per kilo of body weight per day, adults from 2 to 3 grams. The total food intake should be from 60 to 80 calories per kilo. Salts should be moderately restricted but water need not be restricted, unless the edema and ascites are so great as to interfere with respiration and cardiac action. Neither sweating nor purgation are of benefit. Blood transfusions are of distinct value in restoring lost proteins and in correcting the anemia. Diuretics of the purin series (e. g. theobromin sodium salicylate) raise the surface tension of the blood and in this way counteract the effect of the toxic substance and so decrease the edema. These diuretics apparently do no harm, but are not of great value unless the infectious cause of the condition is removed. In many acute infections there occurs a mild degree of parenchymatous nephritis, the so-called "febrile albuminuria." A similar condition is brought about by various intoxications due to proteose, heavy metals or toxemia of pregnancy, but the type described above is by far the most common.

HEMORRHAGIC OR GLOMERULAR NEPHRITIS

Hemorrhagic or glomerular nephritis is an entirely different disease from parenchymatous or tubular nephritis.

The symptoms begin abruptly, following an acute streptococcus infection. The patient is prostrated and there may be definite uremic symptoms. Edema is slight. There may be a temporary suppression of the urine at the onset, or there may be a profuse diuresis. After the first few days, however, the volume of the urine is within normal limits. The urine is "smoky" due to the presence of red blood cells. Later the blood cells may be found only microscopically. A moderate amount of albumin and a few granular casts are present. There is very little anemia at the onset. The volume of the blood and the serum protein are not decreased and there is no change in the surface tension of the blood. The blood pressure is elevated in most instances and may be very high. Non-protein nitrogen and urea are retained in the blood and there is a decreased excretion of phenolsulphonphthalein. Acidosis and uremia are of frequent occurrence. There are changes in the capillaries of the eye

grounds and also in the capillaries of the rest of the body.

The condition seems to be one of general capillary damage, not only of the renal glomeruli, but of the systemic capillaries brought about as the result of a streptococcus infection.

The changes in the capillaries of the body may be readily observed during life, if one examines the capillary tufts at the bottom of the finger nail bed. This is done by moistening the skin with glycerine and examining under the low power of the microscope in a beam of direct light from an arc of a small dark field illuminator. In the presence of hemorrhagic nephritis, the capillaries are tortuous, the arterial limbs are constricted and the venous limbs dilated. The changes are so characteristic, that one may diagnose hemorrhagic nephritis with a fair degree of certainty upon these appearances alone.

In the kidneys, at autopsy, there is seen evidence of extensive damage to the capillary tufts in the glomeruli. In advanced cases, the glomeruli may be practically obliterated. It is these changes in the glomeruli which make it possible for red blood cells to pass through into the urine and which also bring about the functional incapacity of the kidneys to eliminate waste products. The increased blood pressure may well be due to the general capillary constriction throughout the body. The other symptoms, such as edema and acidosis, can also be explained on the basis of capillary injury, either in the kidney or elsewhere.

As mentioned, hemorrhagic nephritis is the result of infection with a toxin producing streptococcus. The infection may be anywhere in the body, but is particularly likely to occur in the nose and throat, more frequently in the tonsils, adenoids and pharynx than in the nasal accessory sinuses. In chronic cases, the infection may be at the roots of the teeth.

In many instances, the acute infection is self-limited and the symptoms of nephritis gradually subside. It is probable that in all these cases there is some permanent damage to the capillaries but this may not be sufficient to lead to any general impairment of the health. In other instances, however, when the infection is more severe or of long duration, the permanent damage may be so great as to lead to a condition of permanent hypertension and renal insufficiency. It seems likely, from our experience, that the lesions are not progressive provided the foci of infection are completely cleared up, although the damage already done may remain. Hemorrhagic nephritis is the result of infection, but one should be very cautious in attacking the foci of infection during the acute stage. It is only after a subsidence of the more violent symptoms that one should resort to surgical treatment.

In the chronic cases, operative treatment of all possible foci of infection is essential.

In hemorrhagic nephritis the diet must be carefully regulated. When the glomeruli are damaged, a high protein diet is contraindicated. A patient with this disease should receive not more than one or two grams of protein per kilo of body weight per day. In the presence of marked hematuria, the diet should be limited to milk. Later cereals containing very little protein may be added. Arrowroot starch is of especial value, because of its low protein content. Vegetable protein tends to increase the hematuria. In cases in which the hematuria is persistent, the patient should have a "sugar day" once every week or 10 days. On the "sugar day" the patient receives 10 grams of cane sugar per kilo of body weight in 1,000 or 1,500 cc. of fruit juice and nothing else.

It is a great mistake to limit the water intake of patients with hemorrhagic nephritis. The drinking of considerable amounts of water should be encouraged. Salts must, however, be limited. Alkalies and diuretics are especially contraindicated. Phlebotomy followed by transfusions is of value as is also the injection of 20 per cent glucose solution intravenously. This latter finds its greatest use in the presence of impending uremia.

The two types of nephritis described are those most common in early life and if neglected, they may result in the chronic interstitial nephritis of adult life. Both of these varieties of nephritis are the result of infection. Both are general diseases in which the kidney is only one of the organs affected. The treatment of each is the removal of infection. Diet and other therapeutic means are of secondary importance, but in general a high protein diet is indicated in parenchymatous nephritis and a low protein diet in hemorrhagic nephritis.

DISCUSSION

Dr. Warren Pearce, Quincy: I should like first to express my appreciation of having the opportunity to

hear such a splendid paper. I am sure we all deem it a privilege to hear Dr. Marriott.

I should like to say a word or two about classification of nephritis. Manifestly in a disease like nephritis it is impossible to have an ideal classification, one in which the pathology, symptoms, etiology, and other factors in the disease are definitely arranged.

The many classifications, resulting from the difficulties encountered in properly classifying the disease has resulted in some confusion in nomenclature. As an example, the term nephrosis is not used by all clinicians in the same sense. Originally used by Mueller to designate only degenerative forms of kidney involvement, especially those due to various poisons; it is now used most often to designate a clinical picture in which there is considerable edema and the urinary findings of nephritis, but with normal blood pressure and very little disturbance of renal function.

The Christian classification, though a clinical one, is of great value, especially because of its simplicity and adaptability.

High protein diet was used by Volhard as well as Munk when they noticed that in lipoid nephrosis the end products of protein metabolism are not increased in the blood and they obtained good results. Epstein went further and used a diet high in protein with almost no fats and very little carbohydrates. The object being to replace the proteins of the blood which are lost by way of the urine and also to compel the organism to utilize the protein of the food by withholding fats and carbohydrates. Elwyn believes the beneficial effects of high protein diet are due to the specific dynamic action of the protein—the stimulation of general metabolism of the cells.

I am sure we all agree with Dr. Marriott in his statement that nephritis is a general disease and not a local one. Rockwood and others of the Mayo Clinic have recently studied fifty-seven cases of nephritis in pregnancy, classifying them by the Volhard method. They conclude that both nephritis and toxemia of pregnancy are general diseases affecting the cardio-renal-vascular system as a whole, and they show that in the cases diagnosed as focal nephritis, benign hypertension, and nephrosis, the patients for the most part recovered with little residual disease, but that the groups diagnosed chronic glomerulo-nephritis, malignant hypertension, and chronic nephritis had a high mortality, the group of chronic glomerulo-nephritis particularly.

Those cases that come under the heading vascular hypertension progressing into nephritis are very important ones. Most of us, I am sure, have encountered young adults in whom, during a routine physical examination, a very high systolic blood pressure had been found. These cases usually feel quite well and the high blood pressure is not suspected. However, they develop into cases of nephritis and should be kept under observation.

Dr. Julius Grinker, Chicago: In the case with albuminuric neuro-retinitis, which Dr. Marriott mentioned as improving, I would like to know whether neuro-retinitis was not considered a point against recovery, as we have been taught, and as we have found by experience in adult cases.

When we diagnose albuminuric neuro-retinitis, we expect the patient to die within a year and a half or two years. Is this also true of children and in the acute cases which he described?

Dr. McKim Marriott, St. Louis, Mo. (closing):

I wish to thank Dr. Pearce for his discussion. Cases of hypertension without renal involvment are more common in adults than in children, so my experience with these has been limited. It is possible that there are cases in which the changes in the systemic capillaries are greater than in the renal glomeruli; and that this may be the explanation of hypertension without nephritis.

As to albuminuric retinitis, we consider this as an extremely grave prognostic sign. I have in mind, however, a child who first came to our clinic three years ago in uremic coma with albuminuric retinitis, a high blood pressure and retention of non-protein nitrogen. Foci of infection were cleared up, and the child has been going to school for the past two years and is in reasonably good health. She still has some albumin in the urine and the blood pressure is still slightly elevated but much lower than it was three years ago. According to the ophthalmologist who examined her on admission, the changes in the eye grounds are now less marked than they were three years ago. This was a case of hemorrhagic nephritis of long standing and permanent damage has been done, but not sufficient damage to interfere with fairly normal body functions.

PAROXYSMAL TACHYCARDIA*

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In presenting for your consideration a discussion of paroxysmal tachycardia, I must at the outset disclaim the possession of new material on the subject. It is rather my design to emphasize certain of the clinical aspects of the condition and include some remarks upon the treatment.

Paroxysmal tachycardia is characterized by a very rapid heart rate, which comes on suddenly, persists for a variable period, (minutes to days or weeks), and terminates abruptly. Sudden onset and offset are distinguishing marks of this type of tachycardia.

The paroxysm may begin at any time. Often this occurs at night. The afflicted individual may awaken with a feeling of fear; perhaps he notes the rapid rate as he comes to himself; often he is already fully awake when he notes some irregularity of the heart, a few "hard thumps" as they are frequently described and

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these are followed by the sudden inception of the rapid rate. With the establishment of the new rate, the patient has a sense of tightness in the upper part of the thorax; often this sense of constriction includes the neck.

Much this same sequence of the symptoms of onset is observed in all the paroxysms, whether they occur by day or night. Pain may occur, and in some instances the patients will volunteer the information that there is a pain in the left arm. In general, pain is an unusual symptom and, in the minor attacks, the patients are often conspicuous by their appearance of comfort in spite of the rapid cardiac rate. In the shorter attacks there may be no complaint save of the preliminary irregularity and the tachycardia; usually, however, there is a sense of anxiety; more intelligent patients may tell of a sense of fear which is hard to describe, but impossible to overcome. The onset may be marked by a feeling of faintness, which may go on to actual fainting. With increasing duration of the attack and aggravation of the symptoms the expression becomes more and more anxious. A tinge of cyanosis may be observed early. Dyspnea is not often a common complaint, perhaps due to the fact that these patients instinctively keep quiet. With persistence of the paroxysm both cyanosis and dyspnea, particularly the former may become quite marked. The vessels of the neck show the rapid pulsations. The radial pulse may be so weak that many beats are not felt and the true nature of the paroxysm may be overlooked if the cardiac rate is not counted over the heart itself. The arterial pulsation becomes notably weaker as the duration of the tachycardia increases. In attacks of long duration, cardiac failure supervenes with edema and eventually coma. Death may occur, although it is a rare termination.

In the minor attacks, physical examination reveals only the tachycardia and the slight cyanosis, unless some primary heart disease is present. A systolic murmur may be heard over the entire precordium or at the base alone. Often these are the only physical findings even though a definite valvular lesion has been discovered at a prior examination. The tachycardia may cover the signs of a primary valvular disease. Gallop rhythm is often present. Dilatation of the heart is not common at the onset of the paroxysm. According to Levine and Golden, marked dilatation of the heart is found only in the attacks of long duration. It may be emphasized that the dilatation of the heart is the result of the tachycardia and not its cause. The systolic pressure falls and the pulse pressure may become very low.

The accepted teaching as to the immediate cause of the onset of an attack of paroxysmal tachycardia is that it is due to the suddenly acquired dominance of an abnormal focus of stimulus production which initiates impulses so rapidly as to entirely supersede the normal pacemaker, the sinus node. The site of origin of these ectopic beats may be in the auricle, the junctional tissue or the ventricle. The auricular type is most common. There has been some discussion as to whether or not paroxysms ever originate from the normal pacemaker; opinion is still divided as to this. Neither are we able to make exact statements as to the relationship which nervous factors or myocardial disease bear to the precipitation of the attacks. We do know that many of the patients whom we see with paroxysmal tachycardia show no signs of cardiac disease, nor do they give a history of prior disease which might warrant a probable explanation for the condition; some of these individuals have definite neurotic stigmata, others have been subjected to emotional or mental strain. In some cases, especially where the paroxysmal attack is one of auricular fibrillation, there is found evidence of hyperthyroidism. A second group of patients will show no signs or symptoms of cardiac disease other than the tachycardia, but will give a history of some form of rheumatic infection which raises in one's mind the question as to the possible presence of a myocarditis. The attacks are fairly common in connection with mitral disease, particularly when stenosis can be demonstrated, and in various forms of myocardial fibrosis, in hearts already damaged by a coronary occlusion, and in myocardial damage resulting from syphilis. Whether the attacks may be due to the excessive use of tobacco or coffee, I do not know, though I believe that both these substances may be responsible for an increased frequency of attacks in individuals already predisposed. It is correct to say that paroxysmal tachycardia has no essential pathology; from the mere presence of the attacks we cannot reason back to any particular lesion which may be assumed as necessarily present; on the other hand, while the attacks occur in many in-

stances upon the basis of pathological change, we can recognize no particular pathological condition as necessarily associated with paroxysmal tachycardia. These attacks may be purely nervous or toxic in their origin, or they may be more directly due to organic cardiac disease, sometimes of advanced degree. The nervous element is an important factor even in those cases which occur in the course of proven disease of the heart.

The symptoms which characterize an attack are largely due to the rapid rate. With the greatly increased cardiac rate, the shortening of diastole diminishes the rest period of the heart and impairs the coronary circulation, shortens the time in which the ventricles may be filled, and interferes with the normal emptying of the auricles. The latter are distended, the pulmonary circuit is overfilled, while the left ventricle does not receive enough blood to maintain the normal pressure within the larger circuit. This fundamental impairment of the circulation explains the usual symptoms and physical findings. The sensation of choking is probably due to the distention of the auricles and great veins. The dyspnea and cyanosis are the result of the impared pulmonary circulation. Levine and Golden found the pulse pressure much decreased and as low, in one instance, as 8 mm. Barcroft, Bock and Roughton in a careful study of one case found that the pulse pressure fell from 50 to 29 during the attack. It seems justifiable to assume that a like fall in the head-on of pressure occurs in the pulmonary circuit. Dilatation of the auricles may occur early; general cardiac dilatation occurs, if at all, after the paroxysm has lasted some time. The final dilatation of the heart with the development of the signs and symptoms of cardiac failure is partly due to cardiac fatigue brought on by increased activity and to the interference with the coronary circulation by the frequent ventricular contractions. In the case studied by Barcroft, Bock and Roughton, the vital capacity was reduced during the attack from the normal of 4,000 cc. to 1,600 cc. the minute volume of the heart which normally ranged from 5 to 6 litres varied during the paroxysm between 2.8 and 2.1 litres. The volume per beat fell from 77.5 ccm. to 13 ccm. The depth of breathing amounted to about half the normal while the frequency was almost doubled. During the attack, the total oxygen use was less.

The diagnostic problems are threefold. We must differentiate the paroxysmal from the simple type of tachycardia; we must determine the presence or absence of underlying cardiac disease and the site of origin of the abnormal rhythm should be established.

The paroxysmal type of tachycardia is characterized by the abrupt onset, the immediate assumption of a very rapid rate which persists at almost the same level throughout the attack, and an offset which equals the onset in abruptness. The history of similar attacks is important.

Paroxysmal tachycardia may be the manifestation of some organic cardiac disease and the presence of such disease should be established or excluded. When the paroxysms are associated with organic disease, the latter is most often either a rheumatic heart or myocardial fibrosis of the arterio-sclerotic type. The history should be carefully investigated for some disease of the rheumatic group. It has been my experience that many of these attacks occur with mitral disease, particularly stenosis. I am further convinced that a not inconsiderable number are manifestations of damage to the myocardium inflicted by a previous rheumatic disease in hearts which do not show the evidence of endocarditis. Robinson and Hermann have pointed out the relationship of coronary occlusion to attacks of paroxysmal tachycardia of the ventricular type. It cannot be too strongly emphasized that paroxysmal tachycardia is, in itself, not diagnostic of myocarditis. Indeed, in passing, we might call attention to the looseness of the term myocarditis and the vague clinical picture which it too often covers. Myocarditis of advanced degree, even such late stages of myocardial disease as old infarcts or aneurisms, may be associated with attacks of paroxysmal tachycardia, but on the other hand the paroxysm frequently occurs without any other evidence of cardiac disease. Paroxysmal tachycardia is not the result of "Acute dilatation of the heart," though it may cause such dilatation. Some attacks persist until an edema of the lungs appears, yet the attack is not one of "Acute edema of the lungs" in the strict use of the term, and treatment directed to such a condition would be worse than useless. During the attack pain may be referred down the left arm, but the attack is not one of angina pectoris, and will not be relieved by vasodilators.

Some reference must be made to the occur-

rence of attacks of paroxysmal auricular fibrillation. In discussions of the subject paroxysmal fibrillation is often regarded as distinct from paroxysmal tachycardia. The latter term is by many reserved for those cases of paroxysmal acceleration of the cardiac rate in which the rhythm is regular. From the clinical standpoint, a discussion of this nature ought to include a reference of those paroxysms of tachycardia in which the rhythm is absoluately irregular. Paroxysmal fibrillation often occurs in rheumatic heart disease. In this condition either paroxysms with regular rhythm or with the obsolutely disorderly rhythm may occur. Paroxysmal fibrillation is most common in three groups of cases — arterio-sclerotic heart disease, chronic rheumatic endocarditis and thyrotoxicosis. The former group is made up practically without exception of individuals past middle life. Where rheumatic disease can be excluded in young individuals subject to attacks of paroxysmal auricular fibrillation the possibility of a thyrotoxicosis should always be thought of. Indeed, the latter is so commonly associated with paroxysmal attacks of this nature that the occurrence of such attacks in young persons without rheumatic heart disease may be looked upon as a diagnostic point of some value in establishing the presence of hyperthyroidism. Determination of the basal metabolic rate may account for the attack of cardiac disturbance and point the way to proper treatment.

The anatomical or functional cardiac conditions which have been mentioned as possible causes of these attacks are not many; the nervous or toxic causes of more or less unknown nature are almost without limit. Whatever the pathology present, it remains true that the attack, in any given case, is apt to be precipitated by some nervous factor. This may be some emotional disturbance, anger, grief, or worry or mental overwork associated with anxiety. Toxic factors, as the excessive use of tobacco or coffee, or nervous reflexes, such as may be set in motion when the stomach is overfilled or due to the flatulence of intestinal indigestion, may be immediately responsible for the attacks. The essential fact to be kept in mind in the determination of the significance of any given attack is this; while the attack is usually precipitated through the medium of the nervous system, the simple diagnosis of nervous origin is not sufficient. The presence of organic heart disease or disease elsewhere, such as hyerthyroidism, must be proven or disproven.

The question as to the site of origin of the abnormal rhythm is largely one of theoretic interest. The elctrocardiographic determination of the location of the site from which the abnormal stimuli arise has, however, some value in prognosis as well as diagnosis. Most often, the ectopic focus from which the new rhythm takes its start is within the auricle though the auriculoventricular node may assume the role of pacemaker. Occasional attacks are of ventricular origin. The paroxysm of ventricular tachycardia, in general, has a more serious prognostic significance than that of auricular or nodal origin. This applies to the prognosis of the immediate attack as well as to the prognosis implied by the underlying damage of serious nature to the myocardium.

To the patient the question of prognosis is of the utmost importance, and this depends mainly upon the nature and extent of any underlying disease. The frequency and duration of the attacks are also of significance, though attacks lasting for hours or a day or two may be fairly frequent and in the absence of organic heart disease entirely cease for months or even years after the patient has been relieved from some emotional disturbance. With the persistence of the paroxysm through days or even weeks the outlook becomes more discouraging. With the increase of cyanosis, the onset of edema, falling pulse pressure and weakness with deepening apathy the prognosis is bad. That the paroxysm may last, as apparently it does, through a period of weeks is probably due to the occasional re-establishment of the normal rhythm for short periods which escape the observation of the physician. Where these attacks can be watched in a hospital, it is often discovered that the rapid rate, regarded as persistent, is really interrupted, for a little while at a time, by a restoration of normal rhythm and rate. Frequent attacks of short duration in nervous persons who are free of signs or symptoms or organic disease are of minor importance except for the interference with the

patient's normal activities due to the anxiety produced by the fear of heart disease.

Treatment must be directed to the causative factor and to the attack itself. The latter may be first considered. Often the patient has found that some simple procedure such as swallowing or holding the breath will stop the attack. Occasionally an attack will stop when the patient puts aside work or lies down for a few minutes. Since these and similar measures usually fail medical treatment is generally necessary. Morphin will often stop an attack; the use of a habit-forming drug to control these attacks is a dangerous procedure. The condition in question is recurrent; the afflicted persons are almost without exception of a nervous type. The dangers of morphin are obvious. Sedatives such as the bromides may be of value in diminishing the frequency of the attacks, but are of little value in controlling a paroxysm. Vagal pressure is a procedure of value. As long ago as 1880, Bensen described a case treated successfully in this manner and stated in an appendix to the article, which was prepared in 1878 but delayed for two years before publication, that the method had meanwhile been described by other observers. Where the paroxysm is known to be due to auricular flutter, digitalis will often be of service if given in large doses. Under the influence of digitalis the flutter may be succeeded by a fibrillation with the characteristic absolute irregularity. When this appears the drug should be withdrawn as the fibrillation tends to return to normal rhythm after the digitalis is stopped in these cases. Flutter is not a common condition. The electrocardiograph permits an easy diagnosis, but clinical diagnosis is difficult and uncertain. If the patient has formerly been under observation and it is known that the return of normal rate is associated with the appearance of a rate which is half of the rate present during the paroxysm it is likely that auricular flutter has been the cause of the tachycardia. Usually, the use of digitalis in paroxysmal tachycardia is of questionable value, though it is indicated in attacks of long duration with the appearance of signs of cardiac decompensation. Where the attacks supervene upon an old coronary occlusion, the use of digitalis in large doses is fraught with danger. It may produce a ventricular fibrillation in the damaged muscle which is already unduly irritable and the onset of ventricular fibrillation means death.

Quinidin sulphate is of definite value in the treatment of paroxysmal tachycardia. In the prolonged attacks it may be given, in small doses frequently repeated, to restore the normal rhythm. In the intervals between the attacks its use often serves to prevent the attacks or notably to diminish their frequency. Quinine hydrobromide may also be used. It is less effective than the quinidin. The use of cardiac stimulants other than digitalis as described is to be condemned. These all serve to stimulate the nervous system even more than the circulatory system and, hence, to aggravate the exciting cause of the attack. After all, the one thing most to be desired is the restoration of normal rhythm and heightened sensitiveness of the nervous system defeats this purpose. Strychnine, caffeine and camphor are useless and probably harmful. Vaso-dilators such as nitroglycerin and amyl nitrite should not be used. Their effect on the blood pressure, further lowering the same, is undesirable.

The essential point in the prevention of the attacks is the discovery and removal of the exciting cause. This may be easy; it is often impossible. The nervous factor is of least importance in the patients with rheumatic heart disease or progressive myocardial fibrosis of arteriosclerotic origin. In both of these groups the attacks of paroxysmal tachycardia are likely to increase in frequency and eventually to be superseded by the establishment of a permanent auricular fibrillation. In the rheumatic group fresh infections may be associated with an increase in the number and severity of the paroxysms. Since the removal of foci of infection appears to lessen the incidence of fresh infections, such may be advised. The direct relationship of foci of infection to the incidence of these paroxysms is a subject about which few facts are at hand, and I will refrain from its discussion. It is, however, true that the cure of hyperthyroidism whether by surgery or otherwise is often followed by the subsidence of cardiac manifestations. The cessation of cardiac symptoms is largely dependent upon the duration and severity of the toxic symptoms prior to the relief of the hyperthyroidism.

ADENOMYOMAS OF THE RECTOVAGINAL SEPTUM*

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Adenomyomas have been found involving various organs and structures in the pelvis and abdominal wall. This paper discusses only those found in the rectovaginal septum. There are four reasons why I am bringing these tumors to your attention for discussion at this time.

First. These tumors, if allowed to go unchecked, may fill the pelvis, encircle the ureters, encroach on the lumen of the rectum, and debilitate the patient so that their removal is a very hazardous procedure. This is proven by the record of fatalities that have followed the removal of large tumors of this kind.

Second. It is my belief, and the belief of others, that more of these tumors exist than are being reported. It seems probable that their character and potential dangers are not being recognized. Cullen said in 1914: "The report of four cases in the course of a few months seems to indicate that adenomyoma of the rectovaginal septum is not rare; and with the more careful examination of all rectal or perirectal growths I feel confident that in the near future many more such cases will be recorded." The fact that a surgeon like myself, with only a fair general surgical practice, has seen and operated on five cases in six years would seem to indicate that Cullen is right, and that these cases are not being recognized or are not being reported. It is probable that when these tumors are seen while they are small, they are overlooked or are not connected with the patient's complaints, and later, when they have become quite large, they are taken for deep-seated, extensive persistent inflammations or for malignant conditions.

Third. It is evident from a study of the literature that there are still many controversial points to be settled, and that all is not yet known concerning these tumors and their treatment. It is with the desire to add a little to the general information concerning them that I report five cases today.

Fourth. It is my hope that by calling attention again to these tumors, the general medical profession, the general practitioners and family physicians, who usually see these patients first, may come to recognize them early when the diagnosis and surgical treatment is relatively easy.

These tumors have been described in medical literature for a great many years and a number of theories have been advanced as to their origin. Some investigators have claimed that they are "embryonic remnants" and are derived from the mesonephric tubules and ducts. Some have believed that they arise from accessory mullerian ducts. Others have thought that they were the result of previous inflammation with ultimate pinching off of the newly formed mucosa or gland structure. Sampson believes that these tumors are caused by the escape of endometrial cells through a patent fallopian tube. They may lodge directly on the peritoneum of the cul-de-sac and grow into the rectovaginal septum, or they may lodge on the ovary first and form a "chocolate" cyst that ruptures and again allows the escape and transplantation of the endometrial cells. This theory of Sampson's is being generally accepted by pathologists and gynecologists at the present time. Cullen believes that these tumors in the uterus arise from the mucosa. In writing of adenomyomas of cervical origin he says: "If these grow posterior, owing to their inherent tendency to become attached, they will spread out into the rectovaginal septum." In another place in writing of adenomyoma of the rectovaginal septum he says: "We know nothing as to the origin of these tumors, but it is certain that their glandular elements are identical with those of the mucosa of the body of the uterus." Recently he has stated that "adenomyomas in the uterus develop from the uterine mucosa. Adenomyomas in structures some distance from the uterus as in the round ligament or umbilicus are due to embryonic inclusion. Adenomyomas developing on peritoneal surfaces in the pelvis are still of doubtful origin with much evidence that they may owe their origin to transplants."

These tumors are found only in women during the menstrual period of their lives, and the majority of the patients have not been pregnant or several years have elapsed since the birth of a child. I do not know what the connection is between sterility and these tumors, but if Sampson is right, and the tumors are caused by endometrial transplants regurgitated through the tubes with the menstrual blood, it would seem

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reasonable to suppose that some obstruction in the cervical canal, such as a partial stenosis or a flexion, caused the regurgitation and also the sterility.

If not removed these tumors may increase in size until they encroach on the rectum and produce obstructive symptoms. They may extend on each side and surround and obstruct the ureters. As the tumor increases in size it will grow into the uterus and cause profuse flowing. With the ureters obstructed the kidneys will be damaged, with the rectum partially obstructed the effect will be felt along the gastro-intestinal tract, and with the increased loss of blood the patient will become anemic and debilitated and the tumor will eventually cause death.

A large tumor is very hard to remove and the operation involves an isolating dissection of the ureters and frequently a resection of the rectum. The weakened patient makes a poor surgical risk for such an extensive operation and the mortality is high. But while the tumor grows extensively in time it does not metastasize. Therefore, with an early diagnosis and early surgical treatment the prognosis is very good.

Practically all of these patients complain of some discomfort, pain, ache or misery, in the pelvis, particularly at the menstrual period. Some will complain of profuse menstruation and some will not. Most of them will complain at some time during the presence of the growth, of pain or discomfort during defecation, particularly at the menstrual period.

On examining with the finger in the vagina, a hard mass can be felt beneath the cervix, which will feel very much like a carcinoma. I want to emphasize that the examination is not complete unless the finger is passed into the rectum. The examiner can not be sure of the size and extent of the tumor unless it is examined through the rectum. These cases furnish another reason for the general importance of a rectal examination. The tumor will be felt just above the anterior mucous membrane of the rectum and closely attached to it. The mucous membrane will be felt to be smooth and intact and this will differentiate these tumors from carcinoma which quickly invades and destroys the mucous membrane.

On examination with the speculum in the vagina, the mucous membrane beneath the cervix may show no change, but it will probably show a little puckering like a small scar or a small bluish cyst that will be almost pathognomonic of the condition. This cyst is formed by the blood that escapes from the endometrial cells in the tumor during menstruation. An examination with the proctoscope will show the anterior mucous membrane of the rectum smooth and unbroken, but it may show a little puckering of that portion of the mucous membrane beneath and attached to the tumor. As the proctoscope is passed in the end one may feel the tumor as it slides over it, and a vague outline of the tumor may be seen.

Treatment: It is generally conceded that the best treatment is surgical. There is no evidence in the literature yet that the x-ray or radium exerts much permanent influence on these tumors unless the function of the ovaries is completely destroyed. Theoretically, being composed of endometrial tissue, they should cease to grow and perhaps retrograde when the ovaries are removed, but because Cullen had one case several years ago in which the tumor continued to grow after the ovaries had seemingly been removed it was thought for a time that the removal of the ovaries would not affect the development of the tumor. In a recent article Graves reported three cases of adenomyoma in the rectovaginal septum in which he removed the uterus with the ovaries, but did nothing to the tumor, and the tumor completely disappeared in two cases and had practically disappeared in the third case. Graves concludes "that in the majority of cases the endometriomata may be counted on to atrophy in the absence of ovarian function and that this probability in their behavior is a valuable guide to treatment in cases like those of rectovaginal adenomyomata in which a radical operation would greatly mutilate the patient or seriously endanger her life." As more cases have been reported it is generally conceded now that the complete removal of the ovaries will cause the tumors to cease to grow and will probably cause them to disappear. It would simplify the operative procedure very much if it was necessary to only remove the ovaries and leave the tumor alone, because it is very difficult to completely remove the tumor as will be shown. In large tumors in which the hazard of removal is great it may be better to remove the uterus and

ovaries and leave the tumor, if further experience proves that they retrograde when the ovaries are removed.

If the patient is past forty years of age there would not be much objection to removing the ovaries, but in patients comparatively young there is a serious objection in my mind to removing them, particularly if the tumor is not large. Four of my patients were under thirty-five years of age, two being under thirty, and I preferred to leave the ovaries and remove the uterus and endeavor to remove the tumor. One patient was thirty-seven years old and the ovaries were removed with the uterus and a portion of the tumor left. The portion left disappeared after the operation.

Both Graves and Sampson advance the thought that there may be varying degrees of "virulence" or "malignity" in individual patients, but at the present time we have no method for determining the degree of activity of the growth in the individual patient.

Cullen says: "Where small discrete nodules exist in the posterior vaginal vault, these may readily be removed through a vaginal incision." I question whether this method of removal should ever be tried, possibly because my one attempt by this method was not successful as will be shown later. In a woman who has not borne children and whose vagina is necessarily narrow, any attempt to remove a tumor from the posterior vaginal vault may be very difficult. If Sampson is correct and the invasion is always on the peritoneal side of the septum, it means that when the tumor is felt or seen through the vaginal mucous membrane the entire thickness of the septum is involved.

I believe at the present time that when the tumor has reached a considerable size, say an inch or more in diameter, in a comparatively young woman, that the uterus should be removed with all of the tumor that it is possible to remove, if the ovaries are left. But my mind is open and the reports of many more cases may change it.

The incision should be longitudinal in the midline above the symphysis if the tumor is to be removed. I say this because some of you know my preference for the Pfannenstiel incision in pelvic work, but this is one condition where one needs all the room one can get, and the midline incision is preferable.

Cullen states that after the uterus is freed on all sides, opening into the vagina anteriorly and laterally, permits the uterus and rectum to be lifted farther out of the pelvis, and makes the removal of the uterus and tumor, with a portion of the anterior wall of the rectum if necessary, much easier. In two cases I placed the patients in the lithotomy position first and incised the vaginal mucous membrane around the cervix before the pelvic incision was made. I did this primarily to be sure that the vaginal mucous membrane was cut below the bluish cysts which marked the location of the tumor, but I found that it made the latter work in the pelvis much easier.

If the rectum is extensively involved it may be necessary to remove a portion of the anterior wall deliberately. It is very hard to dissect the tumor from the anterior rectal mucous membrane because it is so densely adherent and the tumor is so hard. I have taken off little thin slices until I felt that practically all of the tumor had been taken off of the rectal wall. The tumor is usually irregular in shape, and frequently has projections into the lumen of the rectum. I have found it quite difficult to get these projections out and not cut through the rectal mucous membrane. In fact, I accidentally cut through the rectal mucous membrane in two of my patients.

Traction upward on the pelvic portion of the large bowel will bring the upper portion of the rectum and tumor farther up into the pelvis where they are more accessible and makes the removal of the tumor much easier.

The tumor is easily distinguished from the surrounding structures by the touch and with the eye. In describing one of his operations, Cullen says: "The tissues presented a yellowish brown rusty appearance. It was perfectly evident that we were dealing with an adenomyoma." I would describe it by saying that the cut surface of the tumor presented a smooth hard surface *with a close grain* and the color was a dense reddish brown. At any rate the tumor tissue is easily distinguished by sight and touch.

These patients have a tendency to bleed freely during the operation and afterward. Two of my patients bled afterwards and had the va-

gina packed with gauze, and one was taken to the operating room and had some sutures placed in the septum before the hemorrhage was checked.

Drainage may be desirable on account of hemorrhage, and is necessary if the rectum has been opened, but the drain should not be a stiff rubber tube or gauze. A piece of soft rubber dam is preferable and it should not be placed against the suture line closing the opening in the rectum.

As preventive measures it seems reasonable to believe that any obstructions in or around the cervical canal that tend to obstruct the outward flow of the menstrual blood should be removed with thorough dilatation of the cervical canal. This includes the correction of flexions of the uterus, particularly retroflexions, if there is any suspicion that they may be obstructing the normal menstrual flow, and thus cause a backward escape of menstrual blood through the fallopian tubes. I say this hesitatingly since a distinguished Chicago surgeon has written so vigorously against any operation for suspending the fundus of the uterus. It may be that the reports of more cases may show that in small tumors in young women the removal of the tumors with the above procedures is all that is necessary. I am sure that any procedure that will relieve the patient and not include the mutilating operations of removal of the uterus and ovaries will be gladly welcomed by surgeons and gynecologists.

Case 1. *History*—Mrs. W. P. O., seen on October 2, 1919. Aged 29 years. Married five years and never pregnant. Menstruation regularly every four weeks, flows four days without pain. She has a peculiar sensation in the rectum, as if something was pushing out or full and wanted to burst, just three hours before menstruation starts. It is relieved when menstruation is established. She never feels this sensation at any other time. She went to her physician to see why she did not become pregnant. About a year ago she went to him and he discovered a small hard mass in the vaginal vault behind the cervix. Today he examined her and found it had increased in size. It had a feel as of a wart.

Examination. There is a mass just below the cervix in the vaginal vault seemingly about one inch in diameter, which is hard and irregular to the touch. I suggested a proctoscopic examination and a Wassermann test. Proctoscopic examination. About four inches within the rectum on the anterior surface the mucous membrane is reddened. In passing the instrument over this area there is a feeling of induration. The growth does not involve the mucous membrane of the rectum or project into the rectal cavity. The mucous membrane of the rectum up to the sigmoid looks normal and healthy every other place.

Operation. October 13, 1919. Removal of tumor in rectovaginal septum through vagina. An incision was made beneath the cervix and when the tumor was exposed to view it was seen to be fully one inch in diameter. It had bluish and whitish areas in it. An incision was made around the upper half of the tumor with the electric cautery, which dissected it loose from the under surface of the cervix and the uterus. The cul-de-sac had just been entered when the cautery failed to work. The incision around the lower part of the tumor was made with scissors. The tumor was cut off of the rectal mucous membrane with considerable difficulty because it seemed to be closely attached and removed. There was considerable hemorrhage, but it did not seem enough to be alarming. Gauze was packed into the cul-de-sac making pressure against the sides of the septum where the oozing was coming from. That same evening a nurse at the hospital telephoned there had been a sudden hemorrhage and she had found the patient with a lot of blood on the bed. The vaginal vault was repacked. The convalescence was uneventful except for a temperature ranging to 100° for a few days and an offensive discharge from the vagina. The pathological report from the tumor showed it to be an adenomyoma.

The patient returned on February 23, 1923. She had recently been examined by a gynecologist in Chicago to see if it was not possible for her to become pregnant. He examined her and found a tumor beneath the cervix. On examination through the vagina a small mass could be felt behind the cervix and the rectum about one inch in diameter. Evidently the tumor had recurred. The removal of the tumor and the uterus was advised.

Operation. February 27, 1923. Appendectomy, hysterectomy, complete, oophorectomy, right, salpingectomy, right, excision of adenomyoma in rectovaginal septum. The patient was first placed in the lithotomy position. A circular incision was made through the vaginal mucous membrane about one-half inch from the cervix. The bladder was pushed up and separated from the uterus. The rectum was pushed away from the vagina up to the tumor. I found the tumor very adherent to the rectum and nothing further was done in the vagina. A Pezzer soft rubber catheter was placed in the urethra to keep the bladder empty of urine and a rectal tube was placed in the rectum to keep it empty of gas. The patient was placed in the Trendelenberg position. The appendix was removed. The right ovary was firmly attached to the tumor in the cul-de-sac. Both tubes were enlarged and the fimbriated ends with the ovaries were held down by adhesions. This probably accounted for her sterility. The right ovary was so clearly adherent to the tumor that I thought it best to remove it. The uterus, right tube and ovary were removed and there was considerable hemorrhage. I then attempted to remove the tumor, which was about one inch in diameter, and closely

adherent to the anterior rectal wall. The operation was made easier by drawing upward on the lower end of the sigmoid which brought the tumor up into view. The tumor had to be cut off from the rectal wall with scissors. There was no line of cleavage. In removing the tumor I made two openings in the rectum, which were closed with Lembert sutures. A split soft rubber drainage tube was passed down into vagina and fastened to the right of the rectum with a single catgut suture. The anterior edge of the peritoneum was satured to the posterior peritoneum and rectum which walled off the operative area from the general peritoneal cavity. Every bit of the tumor was removed. A blue area on the left ovary was cauterized.

March 4, 1923. The drainage tube was removed from the vagina and fecal matter began to escape from the vagina.

March 30, 1923. Discharged from the hospital with a recto-vaginal fistula.

Pathological report. Sections are composed of bundles of smooth muscle with considerable stroma throughout which are adult uterine glands, some cystic in character. The major portion of the tissue is smooth muscle, but in places, especially near the edges, are white areas of fibrous tissue. Most of the glands are surrounded or have around one side stroma typical of endometrium. In one place on the edge the surface epithelium stroma glands and muscle are characteristic of the uterus. Throughout all areas there is a patchy and diffuse round cell infiltration, no evidence of malignancy is observed. Considering the microscopical picture and history the growth must be considered an adenomyoma.

November 23, 1925. The patient has been examined a number of times since her operation. The recto-vaginal fistula had been gradually getting smaller. She was examined today and no recurrence of the tumor was found. There seemed to be a narrow fibrous band across the anterior portion of the rectum three or four inches above the anus. This must partially obstruct the lumen of the rectum to about one-half its caliber. I could not feel the fistula with my finger and could not see it through the speculum. After the examination, however, she told me that it was still present. She has no trouble unless her bowels are loose. The opening must lie above the fibrous band felt in the rectum.

Case 2. *History.* Mrs. F. J. H., seen on March 16, 1923, aged 32 years. Married eleven years, no pregnancies. Menstruation: Irregularly two to four weeks, flows six days with severe pain. She has constant pain in the sacral region. She was formerly constipated but is not now.

Examination. One or two small tumors were felt just beneath the cervix. There was a sort of indefinite mass in the right pelvis. These two small tumors and the mass in the right pelvis were also felt on examining through the rectum. On examination with the vaginal speculum nothing abnormal was seen in the vaginal vault except a little yellowish discharge exuding from the cervical os.

Operation. March 17, 1923. Appendectomy, oophorectomy right, salpingectomy right, excision of three small tumors from rectal vaginal septum, probably adenomyoma. There was a cyst in the right broad ligament about three inches in diameter. The cyst and right tube and ovary were removed. I then found the rectum glued fast to the posterior surface of the cervix and lower portion of the posterior surface the uterus, seemingly by some hard tumor like tissue. This hard tissue was removed from the cervix and uterus and from the anterior wall of the rectum as closely as I dared to remove it. The incision was closed and the patient placed in the lithotomy position. I intended to amputate the cervix but when I got a view of the posterior vaginal vault I saw the small tumor about one-half inch in diameter that I had felt at the preoperative examination. It was blue in color and looked like a cyst. Evidently I had overlooked it with the examination through the speculum previous to the operation. Two of these tumors were removed from the vaginal side. There was no line of cleavage and they had to be cut away with scissors. I cut as close to the rectum as I dared and tried to remove all the tumor. There semed to be little, if any, bleeding and no attempt was made to close the vaginal wound. That afternoon the nurse telephoned that the patient had been bleeding profusely from the vagina. The vaginal vault was packed tightly with gauze. That evening the nurse reported that the patient was still bleeding and that the packs were saturated. She was taken to the operating room and the vaginal vault was infiltrated with a solution of novocain. Several small bleeding areas were found on the edge of the mucous membrane. There was a general oozing from the center of the wound and this was not stopped until three or four deep sutures were taken in the wound and evidently in the sides of the septum. This stopped the most of the bleeding and gauze was packed in the vagina.

April 8, 1923. The patient's recovery had been uneventful except for a considerable amount of vaginal discharge with a very offensive odor and a temperature of 101° for a few days.

Pathological report. The sections all contained smooth muscle with acini lined by cylindrical epithelium in a lymphoid stroma. In the largest mass there is a cyst lined by squamous epithelium and surrounded by fibroid tissue and a local dense round celled infiltration. This cyst is just beneath the epithelial lining of the vagina. Smooth muscle fibers are present some distance from the cyst. The sections support the clinical evidence that they are adenomyomata.

November 20, 1925. The patient has been examined several times since her operation and no return of the tumor has been fond. She was in today and I examined her both vaginally and rectally and could find no return of the growth.

Case 3. *History.* Mrs. H. W. B. seen on September 10, 1923, aged 37 years; married thirteen years, one child twelve years old. Menstruates regularly every four weeks, flows four days, no pain. For about a year she has had a soreness in the left upper abdomen. It is worse at her menstrual periods. Her breasts get sore at her menstrual periods. Certain articles of food.

like cabbage and chipped beef, cause her distress and vomiting. She vomited about two weeks ago. She is badly constipated but has no bladder trouble.

Examination. The uterus is retroflxed and I was not able to raise the fundus up in position. Pressure on the fundus produced great discomfort. There was a mass in the left pelvis by the side of the uterus.

Operation. September 13, 1923, hysterectomy complete, salpingectomy bilateral, oophorectomy bilateral, excision of portion of tumor in recto-vaginal septum. Both ovaries were held down by adhesions in the pelvis. Nothing abnormal was found with the gall-bladder or stomach. In the pelvis I found a hard tumor about one inch in diameter in the recto-vaginal septum. This tumor was closely adherent to the anterior wall of the rectum. The peritoneum over the septum had the folded-in appearance when viewed from above that is seen in adenomyoma. Following Dr. Cullen's advice we decided to remove the uterus completely, and the uterus was completely removed with both tubes and ovaries. A small portion of the tumor was left on the anterior rectal wall. Recovery uneventful.

Pathological report. The structure of the tissue is the usual structure of the usual muscle tissue including a few gland acini lined by cubical epithelium and surrounded by a narrow layer of lymphoid stroma similar to that found in the uterine mucosa. There is no evidence of malignancy. Diagnosis—adenomyoma.

December 2, 1925. The patient has been examined several times since her operation and no return of the growth was found. She was examined today and with the index finger in the vagina and rectum, I found no recurrence of the tumor.

Case 4. History. S. A. seen on March 15, 1925, age 25. Unmarried, no pregnancies. Menstruates regularly every four weeks, flows four days with severe pain during and afterwards. She feels a feeling of weight and heaviness in the pelvis. She has a soreness and discomfort when her bowels move. She does not menstruate profusely. She has had the feeling of heaviness in the pelvis one and one-half years and it has been worse the last six months.

Examination. The uterus was retroverted and has a small tumor in the posterior wall or else she has a small tumor in the rectovaginal septum. This can be felt through the vagina and through the rectum.

Operation. March 16, 1925, hysterectomy supra-vaginal and excision of tumor in rectovaginal septum. After the incision was made I could easily feel the tumor in the rectovaginal septum. It was not very large. A supra-vaginal hysterectomy was done. Then traction was made upon the lower end of the sigmoid and the tumor brought into view. It was removed very carefully to avoid getting into the rectum.

March 30, 1925, the patient discharged from the hospital today. The convalescence had been uneventful.

Pathological report. The sections consist of irregular bundles of smooth muscle and loose and denser fibrous tissue. In one place in the latter area are two typical uterine glands with a small amount of the usual stroma. Diagnosis—adenomyoma of rectovaginal septum.

December 9, 1925. The patient was examined today and with the index finger in the vagina and rectum, no return of the growth was felt.

Case 5. *History.* Mrs. F. L. B., seen on November 16, 1925, aged 35 years. The same physician referred this patient who had referred the first patient. He saw a bluish cyst in the vaginal vault and made the diagnosis before he called me to see the patient. Married ten years with no pregnancies. Menstruates regularly very four weeks, and flows seven days with pain the first two days. For three months she has been flowing a little scantily between periods. Five years ago she began to have pain on defecation during her periods but she has not noticed it for the last six months. The flowing scantily between the periods made her go to her family physician. For four months she has been conscious of an uncomfortable sensation in the pelvis that extended over to the right groin.

Examination. Through the vagina a hard, nodular mass can be felt in the rectovaginal septum. On examination through the rectum this is irregular in shape, and about one and one-half inches in the longest diameter. The mucous membrane of the rectum is smooth but the tumor is felt to lie immediately above the mucous membrane of the anterior wall of the rectum and has nodules which project into the lumen of the rectum pushing the mucous membrane before it. On examination with the vaginal speculum a small blue cyst can be seen in the right posterior vaginal vault. Just to the left of this cyst the mucous membrane is puckered as with a small scar.

Operation. November 18, 1925, appendectomy, hysterectomy complete, salpingectomy bilateral, oophorectomy right, resection of left ovary, excision of tumor in rectovaginal septum. The patient was placed in the lithotomy position and the mucous membrane was cut entirely around the cervix and below the little blue cyst seen in the posterior vaginal vault. An attempt was made to remove the tumor in the rectovaginal septum from the rectum with scissors but failed because of the narrowness of the vagina. Patient placed in Trendelenberg position. The appendix was removed. The right tube was seen to contain a hydrosalpinx and the right ovary was very small and leathery and was fastened to the side of the pelvis. The uterus and cervix were removed with the right tube and ovary. The left ovary had a clear cyst on the end and another "chocolate" cyst by the side of it. These two cysts were removed and the remainder of the left ovary was left. The tumor in the rectovaginal septum was then felt and seen. By making traction on forceps tightly fastened to the posterior wall of the vagina and also on the lower end of the sigmoid the tumor was brought up where it could be seen. I very carefully removed several small pieces of tumor with scissors and did my best to keep from getting into the rectum. As I removed the last small piece I saw the mucous membrane of the rectum and saw that I had made a hole in it. This opening was closed with tannated catgut sutures put in Lembert fashion

and turning the edges of the hole in the rectum into the lumen. Practically all of the tumor had been removed in small pieces with the scissors. A piece of rubber dam was put down into the vagina to drain the pelvis. The anterior flap of the peritoneum which had been turned back from the uterus was sutured to the posterior pelvic wall and the lower portion of the sigmoid so as to wall off the raw surface from the general peritoneal cavity.

December 4. Recovery was uneventful and the patient left the hospital today.

Pathological report. Sections of tissue showed the structure to be of a typical adenomyoma with no evidence of malignancy.

CONCLUSIONS

1. No examination of a tumor in the recto-vaginal septum is complete unless the examining finger is passed into the rectum.

2. In the removal of these tumors a great deal of attention must be paid to hemostasis as these patients have a tendency to bleed freely during and after the operation.

3. If an accidental or deliberate opening is made in the rectum, the drainage material should not be gauze or stiff rubber, but soft rubber dam, and the rubber dam should not be placed on the suture line.

4. A great many more cases must be reported before definite conclusions can be made as to the proper treatment. Until definite conclusions can be formed the treatment of each patient must be determined by the judgment of the surgeon.

DISCUSSION

Dr. J. J. Moore, Chicago: Dr. Collins kindly asked me to show slides showing the histological structure of the tumor growths of his cases. I will show them first and then continue with the discussion.

From the slides you can see how difficult it is to remove these tumors when they are lying between the vagina and extending into the rectum. Adeno-myoma, I believe, are commonly overlooked. During the last five years we have had six cases, four of which were from Dr. Collins, where in each instance the diagnosis was made before operation. I had another one yesterday but with no clinical history. When one physician has four or more cases in six years and we received no others in the large amount of material sent through the laboratory it would signify that the majority must be undiagnosed.

The theories of Sampson and others that this tumor originates through the transplantation of endometrium is now being supported by the work of Jacobson of New York by endometrial transplants in rabbits. The trarsplants reacted somewhat like the normal endometrium since after the mestrual cycle a larger number of ducts were present than during the quiescent stage. When the tumors have lasted a long time the stroma will show the typical findings of the menstrual endometrium. Large chocalate cysts were found in some of the animals. In one case in a human he found during the period of pregnancy typical decidua in these adenomyomas.

Dr. Henry Schmitz, Chicago: The subject of adenomyomata is very interesting both from the pathologic and clinical standpoint. From the pathologic standpoint it is particularly of interest to try to determine where the so-called endometrical tissues come from. It is obviously clear if an adenomyoma is found directly beneath the endometrium of the uterus we can assume that we have an adenomyoma. If the tumor is near the horn the question arises whether there might not have been an extension from the Wolffian body. The question arises that perhaps the epithelium of the Wolffian body does not resemble the endometrium or if this epithelium from the Wolffian body should not be considered as true endometrium. We must always think of a possible metamorphosis of the endothelial cells. It is particularly of interest to go into the history of these adenomyomas. We were under the impression that our most notable work on adenomyomas done in this country was by Cullen, published in 1908 in his wonderful monograph on adenomyoma. In 1918 Sampson published his paper on chocolate cysts of the ovary due to transplantation into the peritoneal cavity and even into the ovaries themselves. Later on he came to the conclusion that it was a septic condition which probably came from the endometrium.

Another question arises, why is it that we have such dissemination of connective tissue? This will bring us to the discussion of the origin of carcinoma. It has been said that carcinoma arises by misplacement of endothelial cells into the submucosa, that active proliferation of the endometrial tissue follows and that this is followed by the development of cancer cells.

As far as the clinical picture is concerned, Farr in 1896 was probably the first one to describe this as a clinical entity. In doing this he called attention to the history of what is usually called adenocarcinoma. The patient gave a history of having severe menstruation starting late in life. When it began it began as a very profuse menstruation and as the years went on the menstruation became very profuse and more prolonged. At the same time a coagulum would form and the menstruation became painful. It is clear to us that these patients finally suffered from a chronic pelvic peritonitis because of the adhesions found in the pelvic cavity. When this occurs and when the tumor grows it has a tendency to go downward, and these patients have other symptoms like pressure and inflammation in the bladder and pressure symptoms in the rectum, so there is really a clinical entity. We may have connected these cases with the so-called adenomyomas.

As far as treatment, I would agree with Dr. Collins to do a surgical operation provided the tumor is local-

ized. If the tumor cannot be removed of itself, I presume removal by radical extirpation of the uterus and adnexa would be the method of choice.

MEDICAL DIATHERMY AS AN ADJUNCT TO SURGERY.

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Ordway,[1] writing on conservative therapeutics, makes the flat statement that the neglect of the proper instruction and use of physical therapy by the Medical profession, has been a potent factor in the development of the so-called cults.

Most doctors are skeptical about the therapeutiv value of new pharmaceutical preparations and modes of treatment; they should not, however, hesitate to take up new forms of old and proven remedies.

Plate 1. Photographs show terminal result of the fracture of the humerus shown in Fig. 1, A. Patient able to place his hand to his mouth (flexion), put his hand in his hip pocket (extension), full supination and pronation. Photographs taken four months after injury.

Since time immemorial, heat has been recognized as a valuable remedial agent and has been widely used in Medicine. The only drawback to the use of heat heretofore has been the method of applying it. With the introduction and perfection of the diathermy machine, I believe the problem has been greatly solved.

Heat may be conductive, convective and conversive. As Ewerhardt[2] so correctly states, conduction is the "old-fashion" household method of applying heat wherever that therapy semed indicated. Hot water bottles, electric pads, hot poultices, etc., are forms of conductive heat. Convective heat, similar to conduction heat, as far as the old fashion idea is concerned, is heat radiated from a source not in contact with the body. Heat from hot air cabinets, etc., are forms of convective heat.

By diathermy is meant the process of heating through the tissue as contrasted with conductive and convective heat which operates superficially and penetrates very little. Diathermy is heat derived from a high frequency current of high voltage and relatively low amperage. The oscillations are so far removed beyond the point at which human tissue responds that the result is a conversion of electrical energy into heat energy. By the use of suitable sized and proper application of electrodes, the heat may be localized and the intensity regulated at will. We have here then the reason for the greater value of diathermy as compared to the older methods of applying heat.

This discussion is confined to the heating of tissue within physiological limits or medical diathermy. By means of different types of electrodes and a change in relation of voltage and amperage, the tissue may be so heated as to bring about destruction; such a procedure is termed surgical diathermy.

It is an established fact that heat when properly applied is a reliable analgesic and a most dependable agent for the control of spasm. It increases the arterial flow as well as the return circulation, bringing quantities of fresh blood to the part.

Its sedative warmth imparts a feeling of comfort keenly appreciated by the patient. Its relaxing action on the muscles near the site of injury makes proper massage and movements infinitely more effective. It promotes absorption of exudates, shortens the time of disability and enables the surgeon to secure results that otherwise would be impossible. Last, but not least, it instills confidence in the patient toward his doctor.

Diathermy is valuable in many diseases; some, more than others. Especially is it valuable where

the condition is acute and the proper regime calls for movement of the injured parts. It is in cases of this nature, fractures, sprains, dislocations, bursitis, etc., where diathermy is a valuable adjunct to surgery.

I wish to present the following cases as illustrative of the value of diathermy conjoined to surgery:

Case 1. Mr. E. K., aged 37 years; past history unimportant other than that he survived a fractured skull in July, 1925. March 5, 1926, he fractured the left humerus, one and one-half inches above the elbow joint with displacement of the fractured ends of the bone and severe contusion of the soft parts. (Plate I and Fig. 1, A.) Good anatomical position was obtained on reduction, but we were unable to retain it. The arm

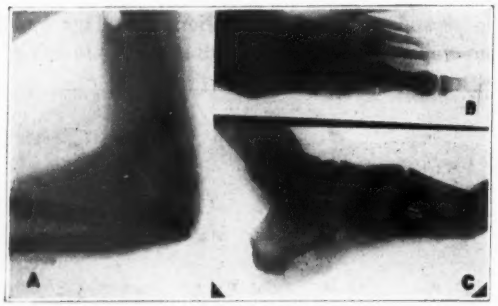

Fig. 1, A. Fracture of the humerus after reduction showing atrocious anatomical position obtained and yet a good functional arm as a terminal result.

Fig. 1, B. Fracture of the metatarsals of the left foot.

was treated with a plaster right angle splint for ten days, then a Jones humerus traction splint was applied for ten days with the hope that it would aid us in correcting the deformity; a plaster jacket was then put on for nine days. Union at this time was good. Diathermy with passive and active motion was then given daily for two months, followed by daily massage for two weeks by Mr. Eric Gustavson of Evanston. The patient went to work three months and ten days from the date of the accident. Diathermy was continued two times a week for some time after the man went to work. Diathermy to my notion was invaluable in this case; at the beginning of active and passive motion, the patient was unable to move the forearm over five degrees without heat; with heat, he could move it about twenty degrees without pain or discomfort. The callus which at first was as large as the arm, rapidly subsided with diathermy. I consider this a good result as judged by the ability of the patient to put his hand to his mouth (flexion) and place his hand in his hip pocket (extension). I attribute the greatest part of the success of this case to the use of diathermy. Photos show the arm four months after injury.

Case 2. Mr. H. B., aged 28 years, married; past history unimportant. June 9, 1926, he suffered a fracture of the metatarsals of the left foot. (Fig. 1, B and C.) The foot was placed in a plaster cast for two weeks and then a wire splint was applied. Passive and active motion was begun at the end of three weeks and partial weight bearing at the end of one month. At this time a large callus was present which rapidly subsided with the use of diathermy. The patient went to work nine weeks post-injury with the foot in excellent condition. A report from the case six weeks after the patient started working was that the result was excellent.

Case 3. Mr. F. R., aged 67 years; past history unimportant. August 12, 1926, he suffered a fracture of the transverse process of the fifth lumbar vertebra. (Fig. 2, A.) He was treated in the supine position for ten days and was then given diathermy three or four times weekly for five weeks. He was dismissed with no disability due to the injury. This man at the time diathermy was started was having considerable pain at the site of injury, which gradually subsided.

Case 4. Mr. W. U., aged 18 years, past history unimportant. August 13, 1926, suffered an uncomplicated fracture through the left superior ischial ramus. (Fig. 2, B.) He was treated in the supine position with adhesive tape straps to the pelvis for five weeks. One might have been tempted to treat this case with diathermy; however an analysis of the x-ray plate shows a large pathological area of the right superior ramus which might readily be either benign or malignant—in the advent of it being malignant, diathermy would be decidedly contra-indicated, so it was not given, and the case held under observation. This emphasizes the importance of having a general survey of the situation and a correct diagnosis in any case where diathermy is to be used.

Case 5. Mr. J. K., aged 41 years, mechanic, past history unimportant. The chief complaint was pain in the right elbow of three weeks' duration. The pain was first noticed at the time he injured the elbow by jerking it while lifting a heavy object. Clinical examination of the elbow region was negative. One might have been tempted to regard this case as one suitable for diathermy; however, an x-ray made by Dr. Alexander revealed a small spicule of bone with sharp edges which showed in the anterior posterior* view of the elbow between the outer edge of the radial head and the radial condyle of the humerus. (Fig. 3, A.) The diagnosis in this case was deferred and the case held under observation. Diathermy was not given. This emphasizes again the necessity of the need of correct diagnosis before diathermy is used.

Case 6. Mrs. C. C., aged 53 years, housewife. She had suffered with arthritis of the right knee for three months (Jan. to March, 1926), being confined to bed. The past history was unimportant other than that she had been under good anti-arthritic regime while confined to bed with no improvement. Diathermy was started and after seven bedside treatments with a portable machine the patient was up and about. Diathermy was continued for about eight weeks three times a week and toward the end of this period the

patient was given five Mirion injections. The patient was dismissed clinically free from trouble following tonsillectomy July 5, 1926, and has enjoyed a good summer driving her car every day.

x-ray of the same knee taken at the time the patient was dismissed, with interpretation and comparison with the former plate by Dr. Swafford at the Evanston Hospital.

Fig. 2, A. Fracture of the transverse process of the fifth lumbar vertebra.
Fig. 2, B. Fracture of the left superior ischial ramus with a large pathological area shown of the right superior ramus, probably a bone cyst.

Fig. 3, B shows the x-ray of the knee with the interpretation by Dr. Jenkinson taken at the beginning of the diathermy treatments. (Fig. 3, C) shows the

Case 7. Mrs. C. G. B., aged 57 years, suffered a fall, injuring her chest July 30th, 1926. The immediate cause of the fall was her knee "giving away under

Fig. 3, A. Plate of right elbow showing a small spicule of bone with sharp edges between the outer edge of the radial head and the radial condyle of the humerus.

Fig. 3, B. X-ray of right knee, plate made previous to diathermy treatments. Report by Dr. Jenkinson. There are many hypertrophic changes involving the bones of the right knee. The epicondyles are irregular and the head of the tibia shows osteophytes involving the lateral surfaces. The articular surfaces of the tibia are somewhat thickened. The patella is thickened and there is a good deal of new bone formation involving the posterior and superior surfaces.

Fig. 3, C. X-ray of the same knee as Fig. 3, B. only taken after about three months of diathermy treatment. Report by Dr. Swafford. Hypertrophic osteoarthritis involving the bones of the right knee. The lateral surfaces of the head of tibia show a number of osteophytes. The epicondyles are irregular. The patella shows a good deal of new bone formation involving the posterior and superior surfaces. I believe, however, that the process is not as extensive as in the former examination.

her." An x-ray taken of the knee showed a marked hypertrophic arthritis. (Fig. 4, A and B.) Diathermy was applied to the knee for a period of three months, first three times a week and then two times a week; along with the diathermy she was given ten injections of Mirion. This patient responded to the diathermy treatments very much as Dr. Porter describes the experiences of his patients with the same treatment. (3) She was dismissed greatly improved.

Case 8. Mr. C. J. C., aged 47 years, past history bursitis of the left knee. It was of three months' duration and had not responded to the ordinary household methods of applying heat. (Fig. 4, C.) Diathermy was

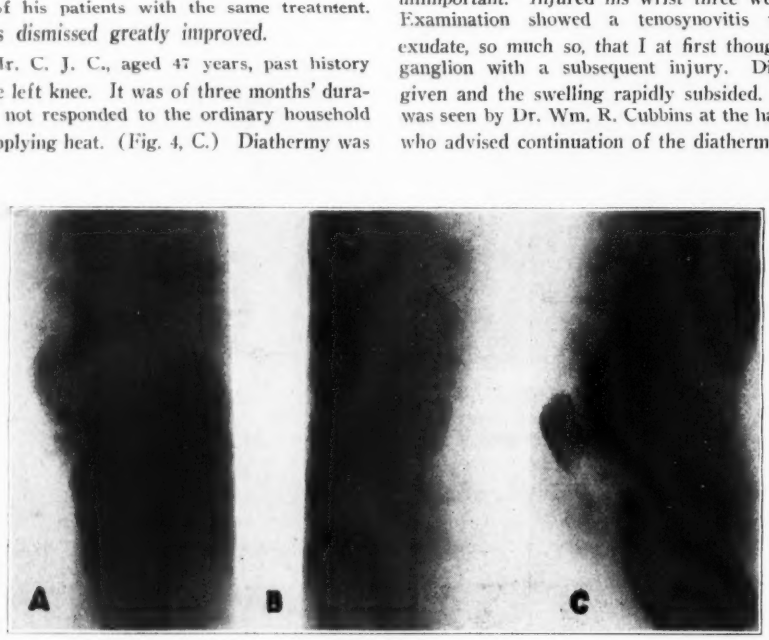

Fig. 4, A and B. X-ray of the right knee showing a marked hypertrophic arthritis.

Fig. 4, C. X-ray of the right knee showing a marked bursitis. The soft tissue shadow is almost an inch in diameter anterior to the patella.

important only in that his work was that of a carpenter which caused him to rest on one knee a great deal of the time. Clinical examination disclosed a marked started and in ten treatments, given while the patient worked, the knee was normal. I am sure that the result in this case would have been impossible without the use of diathermy.

Case 9. Miss A. L., aged 24 years, single, referred to me by Dr. John McClellan for diathermy because of hypertrophic arthritis of the lumbar spine. She was having enough pain to cause her to lose sleep. Diathermy gave her immediate relief. Diathermy applied to the lumbar spine caused her to menstruate five days in advance of her regular period although she had always been regular to the day. No doubt normal functions can be altered by diathermy and one should have a general survey of the case before giving treatments.

Case 10. Mr. C. S., aged 32 years, referred to me by Dr. John McClellan for diathermy because of a hypertrophic arthritis of the lumbar spine. The patient's chief complaint was pain especially on motion. This case is injected to show the practicability of diathermy. The patient was five feet tall and weighed 250 pounds. After six treatments, the patient pronounced himself cured after giving himself a therapeutic test of bowling four games without trouble.

Case 11. Mr. L. C., aged 41 years; past history unimportant. Injured his wrist three weeks previous. Examination showed a tenosynovitis with marked exudate, so much so, that I at first thought it to be a ganglion with a subsequent injury. Diathermy was given and the swelling rapidly subsided. This patient was seen by Dr. Wm. R. Cubbins at the half-way mark, who advised continuation of the diathermy. I am sure that the result here with the older methods of heat would have been impossible.

Case 12. Mr. M. C., aged 24 years, student; past history unimportant; August 31, 1926, suffered general body contusions the result of an auto accident. On the fourth day post-accident his left limb, from the hip to the knee became suddenly discolored due to ecchymoses. Three diathermy treatments and the exudate was completely absorbed.

Case 13. Mrs. J. C., aged 57 years, married, mother of five children. She had had an appendectomy and a uterine suspension some time previous. I was called in the middle of the night because of acute abdominal distress of sudden onset. A tentative diagnosis was made of partial intestinal obstruction and the idea conveyed of temporizing until she could be up and about and have some x-ray work done. About four days lated the husband informed me that he had contracted a Neisser's coccus infection and had infected his wife a few days prior to her having the acute abdominal distress. A rather elaborate history taken

at this time disclosed the fact that about four years previous the patient began to have a profuse vaginal discharge, which probably was the first inoculation. x-ray of the colon by Dr. Alexander disclosed multiple pelvic adhesions. An x-ray of the stomach by Dr. H. Potter was negative other than for hyperperistalsis. Diathermy was given by the abdominal vaginal method as described by Cherry[4] with the exception that a block tin electrode was used for the abdominal electrode. In a short time her condition was so much improved that I feel that good pelvic treatment in this case helped me clear up the question as to whether or not I was dealing with a surgical abdomen.

My experience has been in giving diathermy at the office, with my own machine. These cases are but a few of many in which I have used this form of heat. My results with the cases of lesser importance such as sprains, etc., have been just as pleasing. To date I have had no unhappy experiences.

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THE EARLY DIAGNOSIS AND TREATMENT OF DUODENAL ULCER*

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The medical literature of the world abounds in many articles relating to the diagnosis and treatment of duodenal ulcer. The literature of 25 years ago disclosed the fact that pathologists barely recognized the ulcer, and the descriptions of the clinical picture of duodenal ulcer were extremely uncommon. White made the statement in an address before a Medical Society that he considered duodenal ulcer a "coming disease." He drew a picture analogous to appendicitis which 50 years previous was an uncommon disease—not that it did not exist; but, that the diagnosis was not made. Today, however, appendicitis goes rarely undiagnosed on account of the thorough knowledge we have of the clinical symptoms.

So much new information about chronic duodenal ulcer has accumulated in the last few years, due not to the achievement of the surgeons alone, but with the aid of the x-ray, that we are revising our ideas about frequency and the diagnosis of this condition. Early statistics have been very misleading. This can in part be accounted for by the fact that the gastric and duodenal ulcers were not properly separated, and that the surgical statistics dealt with the severest type of cases. Again autopsy findings revealed ulcers that gave no apparent clinical symptoms during life. Much of the confusion of ideas is due to the different stages of the disease in which the patient has been observed. The practitioner sees the early cases as what appears to be a simple hyperacidity. In the medical ward of the hospital we see the definite cases whose duration of symptoms have extended over a longer period of times and are complicated either by hemorrhage or obstruction. We are now, however, gradually emerging from the confusion and getting a better grasp of the condition as we give more particular attention to the earlier symptoms.

Duodenal ulcer is not a rare disease, but many cases are seen and not recognized. Autopsy figures are changing from small figures to larger, and modern surgery shows a steady increase as to the number of duodenal ulcers compared to gastric ulcers. The old figures showed 12 peptic to 1 duodenal; but, now the statistics show about 6 duodenal to 1 gastric. This ratio seems established for the chronic severe type, but need not necessarily hold good for the total number of both mild and severe cases. The disease seems to predominate in men, and more than three-fourths is reported in the male sex. Certain families seem more susceptible than others, and Stiller believes certain physical types are more susceptible to peptic ulcer.

The etiology of duodenal ulcer as it occurs clinically is not understood. There are probably a number of factors that contribute to its production. Experimental ulcer as produced in the laboratory usually heals promptly, while the clinical ulcer is characterized by its chronicity. One of the essential features that have been recognized is the necrosis involving the mucous membrane and also the digestive action of the gastric juice. Necrosis may be the result of many causes. But this condition, it is believed, would undergo natural repair and be without serious clinical symptoms in the absence of the action of the gastric juices.

The usual location of the ulcer 1-1½ inches from the pylorus lends support to the fact that

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gastric juices have an important part to play. Mayo says that it is only within this neutralizing fluid that ulcers can take place. Much experimental work has been done to show the importance of the role, played by the blood vessels. From the post-mortem examinations following these experiments, accumulated evidence shows that thrombosis and embolism of the arterial twigs supplying the mucous membrane, result in actual necrosis. Many different experiments have been performed in the production of necrosis of the mucosa. Ulceration then followed as a natural consequence. The disintegration of the slough was hastened by the action of the gastric juices. Bolten has shown that poisons of metabolic origin are capable of producing ulcers. He says necrosis is not necessary to produce an ulcer, but that the cell must be damaged to some extent. It is his opinion that hyper-chlorhydria may contribute to the devitalization of the tissue, and thus render it more susceptible to the digestive action of the gastric juices. Rosenow produced ulcer from the injection of cultivated bacteria and found that the bacteria may be identical with those located around abscessed teeth. There are reasons to believe that acute ulcer may appear and heal spontaneously. This may be due to a lowering of the natural resistance of the mucosa for a time as a result of bacterial toxins. Under normal conditions the mucosa shows a resistance to the acid and pepsin which is normally higher in the stomach than in any other part of the living body.

The primary cause of ulcer is still a debated question, and until we know more of its exact etiology our line of treatment must be directed against the conditions that are factors in producing its chronicity. The hyperacidity which is determined in gastric analysis has been attributed to hypersecretion. We know with what frequency it is associated with duodenal ulcer. Some investigators believe that it is due also to an abnormal motility of the stomach or a hypo-neutralization.

The early recognition of symptoms of ulcer is of great importance. If the symptoms are interpreted early in the disease then the treatment is much simpler, and the chance for cure is, by far, better. It is true that many ulcers go undiagnosed for years. This, perhaps, is the result of the fact that pain, vomiting and hemorrhage are usually considered to be the outstanding symptoms. These symptoms we know never occur early in the disease but occur late, if at all. Ulcer is at times a very difficult disease to diagnose, and many patients are unwilling to undergo repeated examinations that are sometimes necessary for an accurate diagnosis. The history of repeated attacks of a "little indigestion" should impress us that the condition is probably one of a more serious nature.

This gastric disturbance, which the patient thinks trivial goes on for a number of years, while the symptoms gradually become severe, and then medical aid is sought again, and the advice of the physician is adhered to with definite improvement. Ulcers if diagnosed early respond readily to ambulatory treatment. It is the old severe type that demands dietetic and medical treatment with prolonged rest in bed. The text-book picture of pain, vomiting, and hemorrhage occur only late in the disease, and to diagnose ulcer early one must forget that these are late symptoms. Early symptoms are variable, but present a fairly constant syndrome.

There is the usual complaint of a vague discomfort, or a burning sensation in the epigastrium or near the umbilicus. This pain may begin from 30 minutes to 2 hours after eating and last three hours. Sometimes, however, pain is not an early symptom, but in a small percentage of cases it is the most persistent complaint. The pain has been described as being a dull aching pain. It is increased by taking of course foods—crusts of bread, spices and pickles. Coffee, tea and friend food aggravate the condition.

Sour eructation is sometimes a frequent and early symptom. This occurs from ½ hour to 3 hours after eating. Usually in the first years only an acid fluid is belched. Gaseous distension of the abdomen is often a distressing complaint and belching very often gives relief to this complaint.

Nausea is not usually an early symptom but it occurs in some cases associated with epigastric discomfort. The nausea and vomiting is not usually associated with ulcer unless it has existed for a number of years. Hematemesis is a late symptom, but can occur early in the disease. Moynihan claims the symptoms are regu-

lar, definite and not easily mistaken. Repeated severe hyperacidity in healthy young men, between the ages of 30 and 45 should not always be taken as a neurosis, but points sometimes to something organic. In some cases the symptoms are more severe than others. In studying the histories of definite duodenal ulcers in Gorham's Clinic at the out patient department of Washington University we were impressed with the long duration of symptoms. Some of the patients gave a history of having been treated medically over long periods of time. Their usual complaint was indigestion and "sour stomach." One interesting point noted was that patients who were below normal in weight gave very definite and severe symptoms of duodenal ulcer, which were of a fairly short duration.

In the treatment of duodenal ulcer the ideal method is naturally rest in bed and hospitalization, but this line of treatment is frequently impossible. The predominant factor in the successful treatment is an attempt to relieve the symptoms, and induce any condition that is favorable for the healing of the ulcer. Thorough treatment of systemic conditions is absolutely necessary, especially for any infection that may exist. However, the primary systemic fault is often very difficult to find.

The physical and mental makeup of the patient must be taken into consideration. Abdominal infection must not be overlooked, especially appendix, and gall-bladder infections. The visualization of the gall-bladder by the Graham method should give us some interesting data on gall-bladder and duodenal conditions. The negative Wassermann reaction can not be depended upon.

Diet is the important thing in the treatment of the condition. Carbohydrates leave the stomach rapidly and do not bind acids. Fats appear to inhibit secretion and motility while proteins stimulate gastric secretion and bind acids. They are also slow in emptying from the stomach. An important factor in prevention of healing of ulcers is activated pepsin, and free hydrochloric acid is necessary for this. By the use of food and alkalies we attempt to control this activation. In a fasting period of a normal subject the neutralizing apparatus is active, and in the ulcer cases this is interfered with. It is for this reason that we give non-stimulating foods at frequent intervals. Regular feedings are given as three small meals along with extra feedings of cream, malted milk at 10 a. m. and 3 p. m., and at bed time. Emphasis is placed upon regularity of feedings. High fats are chosen on account of the inhibition of secretion and motility. Variety of food is added as the patient shows signs of improvement. The alkalies are used since they appear as means of neutralizing free hydrochloric acid at least symptomatically. When used we must bear in mind alkalosis and kidney irritation.

The drugs most frequently used are sodium bicarbonate, magnesium oxide, calcium carbonate and bismuth subnitrate. They are always given between feedings and at times in combination. Constipation is overcome by the increase of magnesium oxide. Kussmal thinks bismuth subnitrate may have a specific action on the ulcer. Atropin, belladonna and bromides are used with the hope of controlling the spasm.

In duodenal ulcer it is the patient with mild symptoms that is most frequently neglected. The internist and the general practitioner should give the patient the benefit of an early diagnosis. This should be followed by the proper persistent medical management.

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DISCUSSION

Dr. Walter Lincoln Palmer, Chicago: Dr. Beykirch and Dr. Abbott are to be congratulated upon these two splendid papers. The subject under discussion is a very interesting one. In the first place, the original cause of ulcer is not known. There are many theories as to its etiology, but none of them has been proved. At the present time, the idea that foci of infection play an important part seems to be predominant. I am far from convinced that it plays the role assigned. The most typical chronic ulcers which have been produced experimentally are those which have been produced by Mann and his co-workers at Rochester, Minn. These workers transplant the duodenum so that the alkaline duodenal fluids empty into the ileum, and attach the jejunum to the pylorus by means of an end-to-end anastomosis. The first part of the jejunum is thereby exposed to the continued and unneutralized action of the gastric juice. Ulcers are said to form in 100 per cent of the experiments. Dr. Mann now has 200 such specimens, and bacteria played no role in the formation of these ulcers. This suggests that instead of considering peptic ulcer as a constitutional disease, which is, at present, the tendency in certain quarters, we should center our attention more on the local lesion.

We are nearly as ignorant of the cause of its chronicity as we are of its etiology. With the sole exception of the ones just mentioned, all experimental ulcers

heal rapidly. Similarly, the majority of human ulcers heal spontaneously without medical treatment. The medical profession does not see many of these cases, for the ones which come to us come for the relief of symptoms. Most of them have undergone periods of ermission and exacerbation, and during the periods of remission, the ulcer may have healed completely, or it may have been merely in a quiescent stage. Similarly, in treating an ulcer, we are never quite sure whether it has become healed, or just symptomless.

The various forms of treatment employed by the older men, such as Riegel and Leube, were empirical, and were based upon the fact that the results obtained were "beneficial." "Beneficial results" is a hackneyed phrase in medicine. Chiropractors can talk about "beneficial results." If we do not have a more rational basis for treatment than this, we may not have a very rational one after all.

It is commonly assumed that if we relieve the symptoms of an ulcer the result is good. This has been the logic for the vast majority of treatments. One man gets results from one treatment, and another man from another treatment. In reality, relief from pain is not a satisfactory index of cure, for the ulcer simply may be thrown into a period of remission and sooner or later flare up again. These different types of treatment have taught us that, in the majority of cases, the symptoms can be temporarily relieved, and probably in some, permanently relieved, by the employment of any of these different methods.

As a matter of fact, hospital ward diet is usually enough to bring about relief of symptoms. This is repeatedly observed at the County Hospital in Chicago. We recently had a patient with a prepyloric ulcer, high grade pyloric obstruction, and marked gastric retention. After three months of ward diet, he suddenly died from pulmonary embolism. At autopsy, the ulcer was found to be healed. We cannot assume from this that ward diet is the treatment *par excellence* for ulcer, nor can we assume that any other treatment is the ideal treatment merely because it has relieved the pain or even allowed the ulcer to heal. No reliable statistics exist as to the permanency of the results obtained by any of the forms of medical treatment. Is there any other basis for our therapy? Is there any treatment which is based on sound theory?

There is one well known treatment which claims to be based upon established physiological principles, but which in reality is not so based. The exponent of this theory assumes that the failure of the ulcer to heal is due to gastric motility and that with rectal feedings the stomach is kept at rest. This is incorrect. An empty stomach is an active stomach. Gastric motility and secretion continue. This treatment also recommends the administration of opiates at times for the relief of ulcer pain. I do not believe that this is ever justified, although, of course, the value of opiates in hemorrhage is well recognized.

The other treatment which claims to be based upon sound theory is the Sippy treatment, which assumes that the digestive action of the gastric juice constitutes the greatest hindrance to the healing of an ulcer. Experiments now in progress at the County Hospital seem to show that the healing process can be delayed, and in some cases altogether prevented, by continued stimulation of the acid gastric secretion. Hydrochloric acid is the irritant which is responsible for the production of pain in the ulcer in the vast majority of cases. A relatively high concentration of acid may be required for the production of pain, whereas a lower concentration may interfere with the healing of the ulcer, but be insufficient to cause pain. This is a point which is not generally recognized. Now, a dietary treatment alone, especially if with milk and cream, may neutralize enough acid to stop the pain. Practically all of the treatments employed lower the level of the acid below the point necessary for the production of pain. The patient becomes free from pain, and he and the doctor both conclude that the treatment is a good one. Under such treatment the ulcer may heal; it may remain quiescent; it may hemorrhage; it may perforate. A painless ulcer is not necessarily a healing ulcer. But the Sippy treatment is the only one which endeavors to neutralize all of the free acid. Hence, when properly carried out, it not only relieves the pain, but it stops peptic activity and thereby does all that medical treatment can do, in the light of our present knowledge, to enable the ulcer to heal.

Dr. J. B. Beykirch, East St. Louis. (Closing): I appreciate the discussion. We have to individualize our patients. We must individualize our treatment. We can not just take a text-book or empiric way of treating each ulcer.

As to giving opiates, we give very few opiates; but the bromides are used to allay the nervous symptoms.

Other than that I haven't anything to add.

STATUS OF MILK PASTEURIZATION IN ILLINOIS*

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Pasteurization, when properly done, is recognized by health and medical authorities as the most practical, economical and positive method of preventing communicable disease transmission through milk. Authoritative scientists who have studied this process continuously for 25 years agree that heating milk to 142° Fahrenheit and holding at that temperature for 30 minutes will render it absolutely safe from all pathogenic bacteria. Pasteurization is an essential safeguard because it is impossible to be sure that the dairy cow or persons engaged in the production and handling of milk are free from disease at all times, even by means of the most efficient dairy inspections and medical examinations. In cities

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where pasteurization has become general, milk-borne epidemics have practically ceased to occur. The United States Department of Agriculture is responsible for the statement that "no epidemic of disease has ever been traced to properly pasteurized milk."

The recognition by the public of the value of pasteurization has resulted in the widespread use of pasteurized milk until today 98 per cent of all the milk used in cities in the United States having a population of 500,000 or over, is pasteurized. The general tendency in Illinois is toward the pasteurization of all milk except that which is certified or which has been produced under conditions similar to those which are employed in the production of certified milk. In Illinois, an estimated average of three-fourths of the milk is pasteurized in cities with a population of 30,000 or over, exclusive of Chicago. In Chicago about 99 per cent of the milk supply is pasteurized.

Pasteurization if not properly done may give the consumers a false sense of safety. There should be no argument that when milk is labeled and sold as pasteurized that it should actually have been properly pasteurized. Until recently only a very few cities in Illinois attempted to supervise milk pasteurization plants and there was practically no inspection or supervision of the sanitary features of such plants by any State agency or department. The Chicago Department of Health has made inspections of milk pasteurization plants since 1916 when steps were taken to more definitely enforce the pasteurization ordinance adopted by that city in 1908. The Rockford Health Department as a part of its good supervision of that city's milk supply for several years has made control inspections of the pasteurization plants. Other cities that have carried on more or less control of pasteurization plants are Decatur, Peoria, Bloomington and Aurora. The supervision of plants elsewhere in Illinois has been practically nil.

With the increasing recognition by the laymen as well as medical men of the value of pasteurization and, therefore, an increasing demand for pasteurized milk, the State Department of Public Health has been asked from time to time as to the sanitary quality of the milk from some of the pasteurization plants and whether or not the plants were so equipped and operated as to assure that the milk was safer than raw milk. School officials who assume more or less responsibility when milk is furnished at schools for the children have especially been interested in this matter and sought the advice of the department. The owners of pasteurization plants in general have also felt the increasing demand for pasteurized milk and also the need of assurance that the pasteurization throughout the state was properly done so that at no time would pasteurized milk in any way cause or even be suspected of causing illness. As a result of these conditions, the medical, dairy and health interests cooperated in asking the legislature for a reasonable law which would make it possible for a consumer when purchasing milk labeled "pasteurized" to know that he was actually obtaining a clean safe milk that had been pasteurized in a plant properly constructed and equipped and operated in a sanitary and satisfactory manner. The 1925 legislature enacted such a law known as the milk pasteurization plant law, a summary of which follows*:

1. Pasteurization is defined as the process of heating milk or milk products to a temperature of at least 142° F. and holding at such temperature for not less than 30 minutes.

2. Operators of pasteurization plants shall apply to the State Department of Public Health for a Certificate of Approval.

3. The State Department of Public Health shall prepare Minimum Requirements for the construction, equipment and operation and maintenance of pasteurization plants.

4. Certain provisions for the sanitary quality of the raw milk which is to be pasteurized are made.

The more important minimum requirements prepared and adopted by the State Department of Public Health in accordance with the law and which a plant must comply with in order to receive a certificate of approval are as follows*:

CONSTRUCTION

Building. The building shall be provided with smooth floors of impervious material and properly drained. The walls and ceilings shall be painted with a light colored paint or have other suitable sanitary finish. The plant shall be properly lighted and ventilated and shall be effectively screened against flies. Adequate toilet facilities shall be available for the persons in the plant and proper lavatory facilities shall be provided.

*Copies of the law may be obtained from the State Department of Public Health on request.

*Copies of the minimum requirements may be obtained from the State Department of Public Health on request.

The plant shall be provided with an accessible adequate supply of water of safe sanitary quality.

EQUIPMENT

Pasteurizers. Apparatus shall be such that the entire quantity of milk can be heated to a temperature of at least 142° F. and held at that temperature for at least 30 minutes. Pasteurizers shall be such that every particle of milk will be held at the required temperature for the required period of time.

Time and temperature recording devices. Pasteurizers shall be equipped with accurate recording devices to show the temperature to which the milk is heated and the period of time for which it is held.

Coolers. Facilities shall be provided to promptly cool the milk after it is pasteurized to a temperature of 50° or less. Open surface coolers shall be provided with tight fitting covers.

Bottle fillers and cappers. A suitable, completely closed bottle filler and a mechanical or hand-operated machine capper shall be provided.

Milk piping, pumps and accessories. Piping, fittings, valves and pumps shall be of the sanitary type, shall be constructed of non-corrosive metal, and shall be such that they can be all taken apart and cleaned with a brush. The arrangement of piping and equipment shall be such that pasteurized milk cannot be passed through piping, pumps, or other apparatus which earlier in the run has been used for raw milk and by-passes and cross-connections in the piping shall not exist. All apparatus in which milk is stored shall have tight-fitting covers.

Washing and sterilization of containers. Facilities shall be provided to properly wash and sterilize the bottles and cans. Facilities shall also be provided to thoroughly dry the cans. If the bottles are not filled as they come from the sterilizer they should be stored in an inverted position until they are to be used.

OPERATION AND MAINTENANCE

Health certificates. Every person employed in the plant coming in contact with pasteurization or bottling processes or the washing and sterilization of the equipment shall furnish a certificate from a competent physician showing he is free from any disease capable of being carried in milk.

Sediment test. All milk or milk products to be pasteurized shall not yield more than a preceptible amount of sediment or stain other than that of natural butterfat, when a pint sample is filtered through a cotton pledget one inch in diameter. This test shall be made of each producer's milk at least once each month.

Filtering or clarifying. Milk shall be filtered or clarified before pasteurization.

Cleaning and sterilization of pasteurization equipment. All pasteurization equipment, including all pipes, pumps, etc., shall be thoroughly cleaned and sterilized after each day's usage and shall be effectively sterilized in the morning just previous to the day's run.

The State Department of Public Health through its Division of Sanitary Engineering is now making inspections of plants in compliance with the law. The owners are informed wherein their plants do not comply with the law and minimum requirements and then a reasonable length of time is given in which to carry out the necessary changes or improvements.

There are now 349 milk pasteurization plants in Illinois, exclusive of those plants which sell their product solely in Chicago. Up to April 15 of this year inspections and reports of 212 of these plants had been made. It was found that conditions at the plants ranged from very good to bad. The reason for many plants being decidedly unsatisfactory is partly because of lack of any control by local medical or health agencies and partly because of the lack of knowledge and sometimes indifference of the owners.

No plant on first inspection was found to comply with the law and minimum requirements in every respect, although there were quite a number which were satisfactory with the exception of a few minor items which were promptly taken care of by the plant owners.

Table 1 indicates the conditions as they existed with reference to the construction of the plants.

TABLE 1. SHOWING ITEMS OF CONSTRUCTION WHICH WERE FOUND UNSATISFACTORY

NUMBER OF PLANTS INSPECTED* 212

	Number	Per Cent
Floors—not smooth, impervious or properly drained	20	9
Walls and ceilings—unsatisfactory	58	27
Doors and Windows—unsatisfactory facilities to eliminate flies	24	11
Water supply—doubtful or suspicious sanitary quality	61	28
Toilet facilities—unsatisfactory. None, 41; Insanitary privies, 44.	85	40
Lavatory facilities—unsatisfactory. None, 59; Inadequate, 31.	90	42

While the construction of a plant is important, it is the equipment which is the most important in determining the ability of a plant to produce a safe product. It is true that proper equipment without the proper operation will not insure a safe product but with the best operation it is impossible to be sure of a safe product unless the equipment is properly designed. Therefore the equipment of any pasteurization plant is a most important feature.

Table 2 shows the number of pasteurizers in use at the plants inspected and the number which

*To April 15, 1926.

were defective or improperly equipped with necessary recording thermometers.

TABLE 2. SHOWING NUMBER OF UNSATISFACTORY PASTEURIZERS AND NUMBER OF PASTEURIZERS WITHOUT RECORDING THERMOMETERS NUMBER OF PLANTS INSPECTED 212

	Number	Per Cent
Commercial pasteurizers	295	..
Mechanically defective	234	79
Not provided with recording thermometers	128	43
Provided with recording thermometers, but out of repair or unattached	26	9
Plants using cream cans for pasteurizers	16	7
Commercial pasteurizers and improvised pasteurizers not equipped with recording thermometer	170	54

In addition to the heating and holding apparatus necessary to pasteurize the milk, there are many other items of equipment which must receive consideration if the product, once it has been made safe, is to be protected from subsequent contamination, before it is delivered to the consumer. Table 3 shows these various items and indicates the number of plants which were not properly equipped.

TABLE 3. ITEMS OF EQUIPMENT AND OPERATION WHICH WERE FOUND UNSATISFACTORY NUMBER OF PLANTS INSPECTED 212

	Number	Per Cent
Lacking sanitary piping or fittings	18	8
Piping with blind elbows, unsanitary pumps or with cross-connections between piping carrying raw and pasteurized milk or using the same pumps or piping for bath, raw and pasteurized	39	18
No proper bottle filler	20	9
Uncovered bottle fillers	70	33
Open surface coolers without covers	150	77
No adequate facilities for sterilizing bottles	81	38
No adequate facilities for sterilizing cans	44	20
No facilities for drying cans	121	57
No filters or clarifiers	86	40
Filtering or clarifying after pasteurization only	42	19
Number of plants not filtering or clarifying before pasteurization	128	60
No proper cappers	71	33
No medical examination of employees in plants	211	99

These facts indicate the status of the pasteurization plants in Illinois at the time pasteurization plant control was undertaken by our department. It is quite evident that definite standards for pasteurization are important and their enforcement necessary. Definite requirements have been formulated and are being enforced as quickly as the necessary inspections can be made. Those plants which have been inspected are promptly making the necessary changes, additions and improvements in order to comply with all of the requirements and as quickly as the first inspections of all the plants have been completed, reinspections will be made and only those plants which meet the minimum requirements in every detail will be issued a certificate of approval. Plants which do not comply with the recommendations made in order that they should meet our minimum requirements will be ordered to discontinue operation.

The minimum requirements as drawn up, are based on present knowledge regarding milk pasteurization equipment and operation and are subject to changes and additions if further facts or information or future scientific studies show the need for same. We must recognize that there is study yet to be done in order to make pasteurization under commercial conditions as nearly perfect as possible. Much research has been done to determine the efficiency of various commercial pasteurizers. The most recent research work was probably that which was carried on at Endicott, New York, which includes studies of the efficiency of different types of pasteurization equipment under actual commercial operating conditions and as a result of these studies, recommendations for remedying several defects generally found in present apparatus were made.

There are certain problems which have not been solved and there is at the present time considerable research work being done by some state, city and federal departments on commercial pasteurization equipment.

The more important problems which call for research and which are receiving attention at present are:

1. *Recording devices.* Devices are not available to record the actual length of time for which the milk is held at proper temperature. This is especially true in installations having the pocket-type pasteurizer or the continuous-flow pasterizer.

In the case of the pocket-type of pasteurizers, it is not possible to determine from the recording thermometer charts for just what period of time the milk is actually held at the required temperature due to the fact that part of the filling period, the holding period and part of the emptying period are all recorded as one operation. In the case of the continuous flow pasteurizer, the recording thermometers do not furnish a means of checking the rate of flow. They are simply a means of determining the temperature

to which the milk is heated and the temperature at which it is held.

2. *Leaky valves.* It is practically impossible to design a valve which will be positively leak-proof at all times, therefore, it is necessary to so arrange the equipment that the connection can be broken between the holder and the raw milk line during the holding and emptying periods and so the connection at the discharge valve can be broken during the filling and holding periods. A device should be designed to record this procedure.

There should also be provided a means of sterilizing the discharge valve just previous to making the connection with the pasteurized milk line. This will eliminate the danger of contaminating the pasteurized milk, in case any milk has seeped through the discharge valve.

3. *Foam and splash.* Considerable foam accumulates on the top of the milk, during the process of pasteurization, especially in vat or tank holders. Splash on the covers occurs in vats of the horizontal coil type of pasteurizers. If the splash or foam is not maintained at as high a temperature as the milk, it is questionable if the entire product is properly pasteurized. Just how much these items affect the effectiveness of the process is a question for research.

The possibilities of research problems relating to the efficiency of commercial apparatus are pointed out here to indicate the intensive study which has been and which is continually being made to make commercial pasteurization of milk even more efficient and effective than at present. Much work is being done on the more important problems and their early solution is assured.

The State Department of Public Health in its milk pasteurization plant work is earnestly endeavoring to carry out the wishes of the general public as expressed through the members of the legislature. The inspections and certificates made and issued in accordance with the law can and will assure that the pasteurization plants are so constructed and equipped that the milk supplied by those plants will be safe if the routine daily operation conforms to that prevailing at the time of inspection. From our contact with the owners and operators of the pasteurization plants we know that the vast majority of such owners and operators sincerely desire to so maintain and operate their plants that the products produced will always be of the highest standard and safety for human consumption and that they welcome at all times inspections, assistance and constructive criticism from medical and health authorities. All of our milk supplies, however, will not be clean and safe for human consumption at all times until the vast majority of the milk buying public join with the medical men and purchase only the cleanest and safest milk that is available in the local market and also when local medical and health control over milk supplies has been extended over that which now prevails. Annual inspections by the state cannot and should not be considered as taking the place of inspections and control by local medical associations and health departments, but rather should serve as a guide to local control and a step toward standardization of local control throughout the state insofar as such standardization is desirable.

Milk is one of our most important and valuable foods and is now regarded as indispensable as a food for children. Its consumption undoubtedly will increase more in proportion than the increase in population. Our milk supplies are now safer than they have ever been before. The passage and carrying out of the milk pasteurization plant law has already and will continue in the future to make further marked improvements in the quality of many milk supplies. Still further improvements will come when all cities have adopted and enforced a good milk ordinance such as the Illinois ordinance already adopted by cities, or the standard ordinance recommended by the United States Public Health Service which has been adopted as a state model by ten states. Pasteurization was never intended to be a means for making dirty milk safe and it has been gratifying to note from our inspections that the owners and operators of the better pasteurization plants have been requiring that the raw milk brought to those plants shall be as clean and as of good sanitary quality as the average milk sold as raw milk. Special attention is called to the fact that one of the minimum requirements mentioned previously in this article deals with the cleanliness of the raw milk brought to the plants and, therefore, the enforcement of the pasteurization plant law assures a clean milk which is pasteurized only to destroy any disease producing organisms which may accidently be in the raw milk even when all reasonable practical care and sanitary requirements have been fulfilled at the dairy farms. The medical profession can, there-

fore, conscientiously advocate the use of pasteurized milk, knowing that the milk brought to the plants is as clean and probably cleaner than the vast majority of raw milks on the market.

DISCUSSION

Dr. R. C. Cook, State Department of Health, Springfield: I do not believe we can afford to let this paper go by without some discussion, because I am sure it appeals very strongly to many of us.

In the beginning, Mr. Shure included in his paper the statement that properly pasteurized milk is safe and gives us thorough protection against all pathogenic germs. That is the argument that we are giving to people of the state of Illinois, that pasteurized milk is safe, the people are believing us and we are believing it ourselves. According to the statements given us by the inspector, Mr. Shere, we find a very small percentage of milk is thoroughly or properly pasteurized. With this information brought to our attention we find we have been deceiving ourselves to a very great extent. I think it is very important that this law has been passed and that these pasteurizing plants are going to receive inspections. I realize also that the department expects these plants to live up only to the minimum requirement and yet after hearing this paper I doubt whether we should be satisfied with the minimum requirements for too great a time. In my limited experience meeting men who are running pasteurizing plants, I find some who are enthusiastic about their product; they take all the interest in giving the people safe milk that the good conscientious doctor does in prescribing for his patients.

On the other hand, I have met a few men who are interested in getting a cap on their bottle which says "pasteurized milk." I went to one small town where it was said there was a pasteurizing plant in town, and when I called on this individual found he was pasteurizing milk in a can that was used to make ice cream. He had no control thermometers of any kind. After talking to him I found he was a graduate of one of the larger universities' dairy department and had considerable experience. He freely admitted to me he knew his product branded as pasteurized milk represented practically nothing. His argument was that he hoped to make enough money to buy and operate in a modern plant.

Dr. T. L. Leonard, Assistant Director State Department of Health, Springfield: I might discuss some of the more important ideas as set forth here in order to emphasize them.

I am wondering if you all heard the statement of the tremendous amount of milk that is now being pasteurized. Mr. Shere states that about seventy-five per cent. of the commercial milk in the state is pasteurized. I had estimated the amount to be about sixty per cent. I think that pasteurizing of milk is increasing every day, and I heard a gentleman state in East St. Louis the other day that he thought all the milk in the state would be pasteurized within the next five years. That may be a little early, but we who have been marking the progress feel that it is a conservative statement.

The most important item, I think, to emphasize at this time, is the matter of the medical profession urging the use of pasteurized milk. Most of us who have visited cities where the physicians are called on, find that the physician himself has notions that milk in the raw state that is clean is preferable possibly to the pasteurized milk. I met one health officer in the northern part of the state who has a good practice, and his practice was limited to the care of women and children, and he stated that when he could get raw milk for his people he preferred it. Now, I think these men are conscientious, I think they believe what they state, but I believe if they had an epidemic they would find that they would be safer with pasteurized milk. There is nothing in the pasteurization process that physicians should worry about, or that the patient will lose in the process. There may be some loss in the anti-scarbutic element, where the temperature is raised higher than that suggested by Mr. Shere. You hear people say they like the taste of raw milk, but they feel pasteurized milk is safe, and when you hear them say pasteurized milk has a taste we know it has been heated higher than it should be. Pasteurized milk has no more taste than raw milk when properly pasteurized.

The recent law passed by the state legislature standardizing pasteurization is a splendid measure, and I think one of the best features of that law is the fact that it requires medical inspection of the person working with milk in the pasteurization plant or handling milk. I believe we will discover more carriers of typhoid fever with this inspection system throughout the state than any other method we could adopt to search out carriers and especially those handling foods. It has been our custom so far to get a specimen of the stool and urine of all persons who give a history, no matter how long previous to the time of the inspection that they have had typhoid fever. In one of the states in the southern part of the United States they have been making these medical inspections of handlers of milk, and I think they have found to date something like fifteen carriers, and I imagine we will have the same experience in this state in time.

As the essayist stated, properly pasteurized milk is safe, but it is like serving milk from cows that are diseased, we prefer to have milk come from cows that are pronounced free from disease by the proper authorities, and we prefer even in drinking pasteurized milk and in serving any food to know that that food has come from persons who are not carriers of disease.

The essayist touched on the subject of regulating commercial milk by ordinance in cities. I think the last report we had a few days ago there are now fifty-seven cities that have enacted an ordinance and the cities of Urbana and Champaign will enact an ordinance soon, as at the last meeting of the city council in Urbana they took favorable action and the committee was asked to bring in a report at the next meeting in two weeks, and Commissioner Franks, Champaign, advised us that just as soon as Urbana acts the city of Champaign will adopt the same ordinance. They have agreed to employ a milk inspector, possibly one

of the students in the University of Illinois, who will act as milk inspector in this district. You might be glad to know that with the exception of three of the larger cities of the state, all of the balance of the larger cities in the state of Illinois have passed a milk ordinance. Some go a little beyond the state ordinance.

Joliet has passed an exclusive pasteurized milk ordinance, that is, all milk must be pasteurized except the raw milk being delivered from the country from the producer to the pasteurizing plant, that comes to town in a raw state.

There are about fourteen pasteurizing plants in Rockford, that is fourteen people who are delivering milk in that city whose milk is classified as pasteurized; there are two distributors delivering certified milk.

Many people will say yes, the milk in this town is certified and they have the impression that certified milk is coming from herds where the cows are tested for bovine tuberculosis and the veterinarians have certified the herds are free from bovine tuberculosis. Of course that is an error. Certified milk is a trade name and it is copyrighted. No one has permission to use the term certified milk unless you have permission of the copyrighters; the only people entitled to use the term are the American Medical Milk Commission or the commissions in the various parts of the United States, and the milk is produced under the standards of the American Milk Commission.

I think milk is receiving much more attention from all of the cities; for instance, we have in Springfield, as Mr. Shere stated a moment ago, producers and distributors that are really requiring more than any law or any ordinance covering the subject—the Illinois Dairy Company in Springfield employ three milk inspectors to go out into the producing territory and inspect the dairies and educate the producer in coming up to certain standards required by the Illinois Dairy Company, and then the milk is purchased on a sediment test as it arrives at the dairy, plus a cream test. This is a service that is paid for by the Illinois Dairy. These men cost money, and this is a service that they are putting into their milk without any ordinance.

I am glad to tell you that ninety per cent. of the milk in Springfield is pasteurized without any ordinance. Dr. Brokaw, the health officer, is at the present time considering an ordinance and Springfield will very likely cover their commercial milk with an ordinance during the present year.

CATARACT

(Facoerisis*)

W. A. Fisher, M. D., F. A. C. S.
CHICAGO

Facoerisis consists in grasping a cataract with a suction apparatus and removing it within its capsule, leaving a clean, round, black pupil. If this method can be accomplished without complications and without a full iridectomy, one would think it should be the operation of choice, as it can be performed without waiting for the cataract to ripen, eliminates secondary operations, lessens prolapse iris, and is practically free from post-operative inflammation. Some claim it has a special technique, but the difference between facoerisis and other methods of operation appears to be only in the mode of grasping and removing the lens.

In the hands of Barraquer, who has brought the technique of facoerisis to its greater perfection, the operative manipulations have become a matter of routine, and are carried out with a very small percentage of complications; but such facility and such a large practice in this method cannot be easily acquired by the average ophthalmic surgeon.

If a method could be devised to familiarize surgeons with the suction apparatus, apart from practicing upon human eyes, the operation would become as simple as other methods. I believe this experience can be obtained by removing the lens of a chicken, placing it upon a table and practicing manipulations with the suction apparatus. Machines devised for removing cataracts by facoerisis should be mastered, if possible, before operating upon human eyes. All seem dangerous at first, many skillful operators rightly hesitating to work in this manner, but fear lessens as skill is gained with practice upon the chicken lens.

Ophthalmic surgeons are looking for some practical intracapsular technique since so much has been written recently regarding post-operative inflammation following the capsulotomy operation. Operators have known for a long time that clinically, post-operative inflammation occurs more frequently after the capsulotomy than after intracapsular methods.

Nugent[1] has emphasized the danger of retained capsule and cortical and has cited the literature regarding it: Schirner,[2] Uhlenhuth,[3] Kraus,[4] Lagrange and Lacosta,[5] Straub,[6] Verhoff and Lemoine,[7] Macdonald and Lemoine,[8] Gifford,[9] Fisher,[10] Fisher and Holland.[11]

Nugent concludes, by stating, that in his opinion, facoerisis is the coming operation.

Hartshorn[12] states that general practitioners should be informed regarding treatment of senile cataract and gives an extensive bibliography. General practitioners often decide that a patient with cataract should wait until he is blind before

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being operated on, because almost all text-books and many oculists recommend that method.

The danger of facoerisis is freely criticized by those opposing intra-capsular operations, but in doing so, the danger of retained capsule and cortical, secondary operations, prolapse of iris and post-operative inflammation are not particularly stressed.

A good surgeon operating by an unfamiliar technique should not expect as good result as he would have if he were more familiar with the method. To report such results is not stimulating progress, but doing actual harm. It would be far better not to report such cases, but adhere to a technique with which one is familiar, or master the new before rushing into print with a few unsuccessful cases.

Competent surgeons with enormous experience, omitting some necessary part of the technique of a new operation, often have disastrous results.

It will be interesting in connection with this to quote the results reported in some recent literature:

Cruickshank[13] reports 117 facoerisis operations with 3% vitreous loss. Wright[14] reports 250 facoerisis operations with 9% vitreous loss. These two surgeons, operating in India, should have practically the same results, but Wright must have omitted some little point in Barraquer's technique, as he and Cruickshank are admitted to be competent operators.

Elschnig[15] operated on 75 cataracts by facoerisis without the loss of an eye. He says the instrument is difficult to maintain in perfect running order and that facoerisis is more difficult than capsulotomy; he also states that complications after facoerisis are fewer and post-operative inflammation less frequent. He advises facoerisis in: First, immature cataracts; second, hypermature cataracts; third, in relatively young subjects. He believes capsulotomy quite as good as the intracapsular method when the lens is mature, but not in hypermature. He also recommends a conjunctival suture.

McPheill[16] cites 17,000 operations, cutting the capsule with point of cataract knife. McPheill practiced Smith's operation for a long time but gave it up on account of too frequent vitreous loss. In 1923 he had 1.6% failures, 1.2% from suppuration and 0.4% from hemorrhage. He does not give percentage of needlings, post-operative inflammation, prolapse of iris, or losses from other causes.

Borello[17] makes a preliminary iridectomy and holds the operator who does not operate in this manner responsible for any damage that might occur if the extraction is made in one stage.

Marques[18] thinks total extraction, which in recent years has become the fashion, will pass just as it has come, until it will only be spoken of as an historic souvenir.

Bagot[19] spent two months with Barraquer and had both his own eyes operated on. All the patients he saw operated on recovered as if by magic and he himself made a perfect recovery. He saw none of the complications feared by oculists. He thinks the Barraquer method[30] is the greatest perfection which the cataract operation has reached since the immortal discovery of Daviel.

Finley[20] reports 50 facoerisis operations with 30% vitreous loss, but blames his lack of experience rather than the method. In spite of this, the visual results were satisfactory. He then operated on 75 by the Smith method with 12% vitreous loss.

Wolf[21] states that despite the excellent results obtained by some with intra-capsular operations, the majority of conservative American surgeons believe the risk too great. He says it must be emphasized that facoerisis is not an easier method for the surgeon, but requires more exact technique than the capsulotomy operation. He also states that if facoerisis can be done without complications, the surgeon has accomplished the utmost in cataract extraction.

Higgins[22] gives the histories of 11 facoerisis operations and believes it the operation of choice.

Woodruff[23] reports his first 6 facoerisis operations claiming good results.

Conjunctival Flap:

The value of a conjunctival flap and prior suture in connection with the cataract operation is emphasized by many operators.

Verhoff[24] describes a conjunctival flap in 1916 and Derby made a modification.

Salva[25] states that in 172 cataract operations with conjunctival bridge he had no iris prolapse and only three incarcerations.

Würdeman[26] recommends suturing the conjunctiva after cataract operation.

White[27] uses conjunctival suture where the condition indicates a possible vitreous loss.

Joogs[28] and also Van Lint[29] praise the advantages of a conjunctival suture.

Facoerisis Methods: The three best known facoerisis machines differ slightly, but each is a suction apparatus:

1. The Barraquer apparatus (made in Barcelona, Spain) is an electric suction machine with vibrations and gives instant contact.

2. The Green apparatus (made by V. Mueller and Co., Chicago) is an electric suction machine without vibrations giving slow contact.

3. The Downs apparatus (made by Downs, London) is a mercury suction machine without vibrations giving instant contact.

The technique of facoerisis with these different machines is quite similar, but Barraquer[30] insists that all details of his technique are necessary if good results are to be expected.

In preparing a patient for facoerisis, the surgical rules for a cataract operation must be observed. The stages of the operation are as follows:

(a) In order to dilate the pupil an ointment of 5% cocain and 5% euphthalmine is inserted between the lids 45 minutes to 1 hour before the operation and the eyes kept closed. If the pupil is not then well dilated, more time must be given.

(b) The eye is then anesthetized in the same manner as in any cataract operation; most operators instill 4% cocain, repeated in 5 minutes and a third instillation in another 5 minutes.

(c) Fifteen minutes before the operation is begun 2% novocain is injected to paralyze the orbicularis. Poyales of Madrid, Spain, injects 9 cc. in three places: First, at the outer side of the eye beginning on a level with the eyebrows, using a needle 50 mm. long, passing the needle downward and injecting 3 cc. as the needle is withdrawn; secondly, the same amount is injected below the lower lid; and thirdly, 3 cc. are injected from the outer side of the eye straight down in the direction of the ear. Barraquer[30] injects novocain in this same manner, but less of it. Green[31] uses deep orbital anesthesia. The injections may annoy the patient a trifle, but paralysis of the orbicularis is very desirable.

Prof. Vila Coro of Barcelona, Spain, has discontinued novocain injections but instills 4% cocain three times at 5 minute intervals, and just before beginning the operation instills 2 drops of a 50% solution of cocain in 1/1000 adrenalin. He contends that the paralysis is as complete as that produced by the injection of novocain.

(d) A suture is placed in the upper and lower eye lid laid out of the way in the inner angle of the eye, ready to be tied when the operation is finished. This is done because of the paralysis of the orbicularis.

(e) The erisofaco tip is sterilized by boiling and holding over a flame, then covered with a sterile towel.

(f) The section is made with a conjunctival flap which is turned down, in order to see the iris, then a small peripheral iridectomy is made.

(g) A conjunctival suture is inserted, a surgical knot is made but left loose and placed out of the way for lens delivery.

(h) The conjunctival flap is raised, the erisofaco is placed flat upon the lens and the suction is applied without pressure upon the lens or the slightest movement of the hand. According to Barraquer[30] the lens is slowly turned upside down and drawn very slowly from the eye, bottom side first. Green[31] draws the lens out top side first using ½ tractions and ½ pressure.

(i) The conjunctical suture is tied, the spatula used to straighten out the conjunctival flap and adjust the iris which has contracted, and the pupil is seen round and black. With the suture in place, the toilet is deliberately made.

(j) Eserin ointment ½% is inserted between the lids.

(k) The lid sutures are tied, yellow oxide of mercury ointment, eight grains to the oz applied to the closed lids and both eyes are bandaged.

Lid Control:

Fisher's lid hooks[32] have many advantages but any lid retractor would seem safer than the best eye speculum.

After Treatment: Twenty-four hours after the operation, the patient can be up, the bandage is changed, the lid suture is removed and he is given one eye to go about.

The third and fifth day the bandage is again changed and if the lids are not swollen, a bandage is reapplied to the eye operated on.

The seventh day the eye operated on is inspected for the first time; if the conjunctival sutures are intact, they are removed, but they often come away with the dressing.

If no complications have occurred, the patient may be dismissed with a shade.

Bruns of New Orleans, U. S. A., Poyales of

Madrid, Spain, and Fisher of Cairo, Egypt, operate for cataract, send the patients home in a cab or street car and have them return every two days for treatment. They report equally good results from this manner of after-treatment as in those remaining in the hospital three weeks.

Complications: If the pupil contracts smaller than the erisofaco after the incision is made or blood obstructs the view, or, if the erisofaco slips from the lens, it is well to finish the operation by the Smith method, although Barraquer prefers to release the vacuum and commence over again. If the capsule is ruptured or vitreous is lost, it is advisable to insert a conjunctival suture on either side of the first one, then deliberately remove all capsule or cortical from between the sutures which can be more readily seen by the aid of a blue light.

CONCLUSIONS

1. Facoerisis if properly done seems to be the best operation for all kinds of cataracts, except dislocated lens, but it must be emphasized that it is not as simple as capsulotomy. Complete anesthesia, paralysis of the orbicularis, efficient lid control and a good light are necessary, and are also desirable in any method of operating.

2. Post-operative inflammation seldom follows an uncomplicated facoerisis operation.

3. Detention in the hospital is reduced.

4. The technique of facoerisis is simplified by practice upon chickens' lenses.

5. Six weeks old kittens give quite good practice for the capsulotomy method and also for the Smith, Knapp, Torok, Verhoff, Wright, Sinclair and Fisher intra-capsular methods.

6. Facoerisis operators should be familiar with, and favorable to, the Smith operation, because it is usually quite necessary to employ the Smith Technique if a complication occurs while doing facoerisis, such as:

(a) Slipping of the erisofaco from the lens after the lens has been dislocated.

(b) Too great contraction of the pupils after the incision is made.

(c) Blood in the anterior chamber obscuring the pupil, or, if for other reasons the operator decides not to do facoerisis.

7. From recent literature a conjunctival suture seems desirable, but it must be emphasized that it is not a simple procedure.

8. The above conclusions are not based upon a few operations or upon a few hundred. The experience of four seasons in India and operating upon more than 2,500 eyes by the intra-capsular method, permits me to state that some form of intra-capsular operation will produce better results in a competent surgeon's hands than the capsulotomy operation, and that facoerisis, properly performed, is the ideal operation but not the simplest.

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DISCUSSION

Dr. Oscar B. Nugent, Chicago: Dr. Fisher's paper is so different from text-book teaching that a few of the points mentioned should be emphasized. Last March I presented a paper before the Chicago Ophthalmological Society portraying the dangers of retained cortical following capsulotomy extraction, and cited the literature on the subject. The trend of opinion in the literature was toward the intra-capsular extraction of cataract, and my conclusions were that intra-capsular extraction was by far the best method of

operation, and that of all the various forms of intracapsular extraction, from my personal observation, facoerisis is the operation of choice. The danger of free lens cortical in the eye following capsulotomy extraction, the desirability of operation before the cataract becomes ripe, the elimination of secondary operations, the lessening dangers of prolaps iris, and the freedom from postoperative inflammation are some of the points which in time will force oculists to do intra-capsular extraction instead of capsulotomy. The success in facoerisis lies in the thorough knowledge of the working of machinery involved, and following in minute details the instructions and recognized technique of the operation and the pre-operative preparation of the patient. This can be accomplished by practicing the manipulation of the erisifaco with chicken lenses as suggested by Dr. Fisher. I believe too much cannot be said concerning the familiarizing of one's self with the use of the erisifaco before an attempt is made to employ it in a cataract extraction. The amount of force necessary to deliver a lens with the erisifaco is so slight that it is scarcely perceptible to the well-trained operator. Therefore the prospective operator must practice its use with some artificial device, and use it sufficiently to inspire his confidence in his ability to insure a safe delivery. A perfect contact must be made between the erisifaco and the surface of the lens in order to insure the formation of a vacuum which is necessary for the proper purchase on the lens. The chicken lens furnishes a good subject for practice, it being very nearly the size of a cataractous lens, about 7½ mm. in diameter. I have a device which furnishes a chance to practice the turning of the lens and extracting it through the pupil. It may be called a practice eye and consists of a glass barrel into one end of which is inserted an artificial iris made of dental rubber dam with a pupjl 6 mm. in diameter, under which is a small rubber sac filled with water, representing the cataract. The sac is 8 mm. in diameter, being made larger than the pupil to furnish a slight resistance upon delivery, corresponding to that furnished by the tearing of the zonula. The only criticism to this device is the necessity of making slight pressure with the erisifaco upon the lens in order to perfect the contact, because the water bag is round and not so flexible as a cataractous lens. I hope to overcome this discrepancy in the near future. The six weeks old kitten's eyes which we have found to be so valuable in teaching the Smith-Fisher operation are of no apparent value in practicing facoerisis. I am thoroughly convinced that any operator who has done enough cataract extractions by any other method to insure a good incision can learn to extract a cataract by this method if he will practice facoerisis with the artificial devices herein mentioned, and thereby give the patient the benefit of all of its advantages. Barraquer instructs beginners to select an old patient with a senile cataract, mature and in excellent condition, for the first operation; not to change in the least possible way the details of the technique described, and to be most exact in following them out; if the flap, the iridectomy, the application of the suction cup, or the preparation of the patient has not been correct, or if at any stage of the operation difficulties arise, do not persist in facoerisis in the first cases, but terminate the operation by the usual method. There are several points in the operation to be emphasized: The preparation of the patient; paralysis of the orbicularis; suturing of the lids; conjunctival flap and suturing of same; peripheral iridectomy; and control of the lids with a good lid retractor in preference to an eye speculum. Facoerisis is by no means as simple an operation as capsulotomy, and anyone contemplating its use should be capable of performing the Smith operation, so that in the event some unforeseen accident occurs, making it advisable to discontinue facoerisis, he could complete the operation by the Smith method. This can be well mastered by practicing the operation on the eyes of six weeks' old kittens, as has so often been advocated by Dr. Fisher.

Dr. George Francis Suker, Chicago: The cataract operation you all do to my mind is safe in almost anyone's hands who has common sense, but the objection to the majority of operations is primarily the corneal section. I think the majority of failures are due to not having a proper corneal section. The puncture is too often not at the extreme edge of the scleral side of the limbus. The knife should be held at right angles to this corneal plane when puncture is made, not on a parallel, thus obtaining a maximum diameter of the incision. This is particularly so when the counter puncture is similarly faulty. This is an essential factor in doing any cataract extraction, Barraquer, Smith, or any other type. If you should by any mishap get your knife in so that you see you are not at right angles, twist the knife about ½ mm., then you will get a square puncture. The counter puncture is also to be considered. This should be almost as far in as for the Smith. In order to obtain a nice conjunctival flap use a two per cent. solution of novocain subconjunctivally, getting a fair sized bleb, and before same has disappeared make your corneal section and your flap is easily made.

I am in favor of intracapsular extraction and very partial to the Kalt method. I have not used the Barraquer method so cannot discuss it, but certainly any intracapsular cataract operation, if properly done, will in the long run give better results. So far as vitreous loss is concerned, that is a matter of personal experience, and I doubt very much if the vitreous loss is greater than in any other type of cataract extraction. There is this to be remembered, that in some instances you will get what appears to be a secondary cataract because of a thickening hyaloid membrane. It seldom gets sufficiently opaque as to require a discision.

The akinesis, I think, is an admirable procedure. I would advise all of you who are not doing as many cataract operations as Fisher to employ it; you are a good deal safer with it. It does not make any difference what you may say, the ideas Fisher has about cataract extraction are not to be questioned. He is

as well qualified to speak of these methods as Smith is about his extraction.

Dr. Wm. Fisher, Chicago (closing): I did not expect much discussion on this paper because the title of the paper is not found in text-books, dictionaries or encyclopedias. I am glad Nugent stresses a number of things regarding the technique, because the entire technique should be followed if the gentleman who devised facoerisis is to have any credit. It is not fair to use half of any technique and omit the other. Coming down on the train today one of the oculists told me he had used facoerisis on one case but was not very successful, that the iris was caught in the cup and when he removed the lens he removed most of the vitreous. I asked him about the details of the operation and he had, in reality, used no part of the correct technique and still called it facoerisis.

Suker made a very good point regarding the incision. He is always practical and usually right. Every operator knows that without a good incision one cannot do a good cataract operation by any method. I believe the forceps are more difficult to use than facoerisis. There is another serious objections to forceps. Anyone, no matter how skillful, often ruptures the capsule and if one uses the forceps and draws the lens out top side first, there is great danger of having the iris forced out. If facoerisis is used, the lens is tumbled and brought up and out over the iris, thus reducing prolaps iris, which, I believe, is the bugbear of the cataract operation and is the cause of more lost eyes than vitreous loss.

THE PALLIATION OF INOPERABLE CANCER.*

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In the absence of definite knowledge concerning the nature and origin of cancer the only effective treatment promising cure is surgical removal of the growth. Within the last few years three other useful agencies have been added to the armamentarium, viz.: the x-ray, radium, and surgical diathermy. However, one item in the treatment of cancer which does not appear to have been given the emphasis it deserves, is the palliation of cases where a radical operation is impossible. The purpose of this paper is to create in the medical profession the feeling that even in incurable cancer cases much can be done for the patient without resorting to uncertain or useless agents and remedies. A fatalistic point of view and a therapeutic nihilism of the licensed physician drive the unfortunate victim of cancer to quacks and charlatans.

Whatever may be the precise value of the nutritional theory of cancer genesis, enough evidence has been adduced to demonstrate that metabolism plays a certain rôle in the development of cancer. Therefore, much stress should be laid upon the systemic treatment of the incurable cancer and the necessity of building up the resistance of the cancer carrier.

The temperature of the water in the bathtub should be kept as low as possible without causing an unpleasant chilling of the body, as hot water causes hyperemia and thus may promote the rapid growth of an external cancer.

If the patient cares for massage, the region where the tumor is located should be carefully avoided by the masseur because vigorous manipulations stimulate the growth.

Experiments on animals revealed the importance of the diet in the development and progress of malignant tumors. A diet rich in carbohydrates stimulates the growth; calcium retards it; potassium has a stimulating effect. A diet poor in proteins is to be recommended. Cooked vegetables and cereals with abundance of fruit are the best food, especially for patients with cancers of the gastro-intestinal tract. An excessive use of coffee, spices, condiments, beans, sauerkraut, fresh bread should be forbidden. Great stress should be laid upon thorough mastication of the food.

In order to dilute and eliminate the toxic products of malignant tumors, large amounts of water should be consumed daily. Charged drinks and alcoholic beverages are not advisable. It is not difficult to restrict the diet of the patient along these lines without depriving him of culinary enjoyments. For habitual constipation, which, according to Sir Arbuthnot Lane, is an important factor in the etiology of cancer, a liberal use of water and fruits should be recommended. Occasionally a mild laxative such as liquid petrolatum may be taken. Saline laxatives such as citrate of magnesia, epsom salt, etc., must be avoided because due to their hygroscopic action they withdraw from the organism a large amount of water.

One of the greatest problems a physician has to face in the palliation of cancer is the pain. If the neurotic element plays an important rôle in the patient's complaints, bromide preparations

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and not morphia should be resorted to. A moderate pain is relieved by suppositories containing antipyrin three decigrams and extract of belladonna one centigram; adalin-luminal tablets can be used with gratifying results when the pain is very annoying. If morphia has to be used, preferably it should be given by mouth or by rectum and the hypodermic injections spared for the latest stages of the disease. Very severe pain may be relieved by a combination of morphia with magnesium sulphate. A principle should be adopted by every physician never to place a syringe in the hands of the patient. Once in a while a hypodermic injection of saline solution may be substituted for morphia with the same beneficial result.

In the cancer of oral cavity patent mouth washes should be avoided as nearly all of them contain irritating substances such as menthol, thymol, etc. An infusion of the leaves of salvia —one tablespoon to six ounces of water—alternating with a two per cent. solution of tannic acid—serves the purpose best.

In cancers of the esophagus an early gastrostomy performed under local anesthesia is very advisable as it relieves the congestion around the tumor and prevents the starvation of the patient. Milk with cream, tea, cereals, vegetables, fruit juices, thin soups, may be given through the catheter inserted into the gastrostomy opening.

In cancers of the stomach one remedy which was highly praised two decades ago and then fell into oblivion frequently acts as a tonic, relieves the distress in epigastrium and improves the appetite; it is wine of condurango—one teaspoonful three times daily before meals. Gastric hemorrhages may be checked by lavage with very hot water and application of heavy sand bags over the epigastric region. A jejunostomy may be performed in suitable cases to supply nourishment and relieve pain caused by ingestion of food.

In inoperable cases of the rectum an early colostomy is indicated. The constant irritation of the cancer masses by fecal material and the resulting congestion and pain are thus relieved and the life of the carrier prolonged over a considerable period. Low enemas with warm chamomile tea remove the necrotic masses and foul smelling secretion.

Hemorrhages from a cancerous urinary bladder frequently subside after irrigation with hot water and application of heavy sandbags over hypograstrium. Instillation of a few cubic centimeters of one of the blood coagulants of animal origin may prove successful. Adrenalin usually does not prove of much value in these conditions.

External cancers should not be treated with any irritating substances such as scarlet red, silver nitrate, balsam of Peru, ichthyol. Pastes containing arsenic should be used with caution as intoxications from the absorbed arsenic have been repeatedly observed.

Among the liquid caustics the chronic acid has to be mentioned because its application causes relatively little pain and checks for a while the rapid growth of cancerous masses. A two per cent. agueous solution of formalin has in addition to these qualities also a deodorizing property.

A modern method of palliative treatment of cancer consists of application of salt paste as recommended by Andersen. An excess of sodium chloride damages and destroys the cells and also makes them more susceptible to irradiation. A formation of a thick crust is prevented by covering the dressing with some impermeable material. Pain, local edema and eventually a parenteral salt fever are the disadvantages of this method but the published reports encourage further investigation.

In the control of fetor which frequently is one of the most unpleasant symptoms of cancer, a local application of granulated sugar often has remarkable results. The only objection to its use may be the nutritive value of carbohydrates which may contribute to the rapid growth of cancerous masses. Equally beneficial results may be obtained from the use of powdered coal of animal origin. It is superfluous to emphasize that this "kitchen treatment" (salt, sugar, coal) has merely a certain value in amelioration of the disagreeable symptoms of cancer discharge and fetor and can never be regarded as a cancer cure. Two more substances may be used in form of a dusting powder for the same purposes; permanganate of potassium and resorcin. The latter also has analgesic and slightly antiseptic properties.

Among the physical agents, phototherapy in form of sunlight may be applied as a deodorant by means of a concave mirror. Thermocautery may be used wherever destruction of necrotic

masses is desirable. Cryocautery or the use of carbon dioxide snow is superior to the application of heat as it does not create such an intensive active hyperemia.

Mineral cancer cures such as the use of lead or gold as well as employment of various sera, toxins, ferments, extracts of plants (mistletoe) are of a very problematic value.

CONCLUSION

It cannot be too strongly emphasized that only an early operation or radiotherapy give fair chances for a radical cure of cancer. In inoperable cases the task of prolonging the life of the patient, of relieving his pain, and of eliminating the discharge and fetor can be accomplished by means of various chemical and physical agents. Of vital importance are periodic health examinations. A widespread lay education on the cancer problem will limit the necessity of palliation and make more cases of cancer amenable to successful surgery or its substitutes.

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DISCUSSION

Dr. Bertha Van Hoosen, Chicago: I am very much interested in this paper bacause I feel it is of value to us since we see so many cases of inoperable cancer. The Doctor did not mention what seems to me one of the simplest and most harmless methods of relieving pain, stopping the odor and absolutely stopping the hemorrhage in inoperable cases. These are the three things which give the most trouble in inoperable cases. I have been using emetin hydrochloride. I have demonstrated it to my satisfaction as well as to many others. Five grams of emetin hydrochloride given intramuscularly and repeated in five days will absolutely stop the hemorrhage and will in a week's time relieve the odor and the pain will become lessened. I then repeat these intramuscular injections once every three or four weeks.

The cases which bother us most are those which have been operated on and then have a return. I have wished very much that I could be sure when I did a good radical operation on the breast for cancer that the disease was not going to return, but I have never had such results and I think no other surgeon has. I thought if emetin would do so much for these inoperable cases, I would use it to prevent the cancer returning. I have for the last seven years given emetin to all operable cases. I have given five grains intramuscularly two or three days before the operation, then five grains a week following the operation and repeat weekly for a month. I can report 13 cases of cancer of the uterus that were operated on between eight and five years ago. There has been no return in 10; three have had a return; of these three, two did not have emetin treatment. They went to other towns where the doctor thought it was better to give x-ray treatment and they died within a year. The third patient had emetin treatment but she was delivered of a full term pregnancy a month after the amutation of both breasts and Dr. Mayo has told us that nothing saves these cases.

Dr. J. K. Narat, Chicago (closing): I did not mention emetin which Dr. Van Hoosen recommends for the reason that I did not have any practical experience. I mentioned only the methods that have been used at the Cancer Institute. I believe it is worth trying but we need large statistics to draw conclusions.

CORONARY THROMBOSIS*

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Coronary thrombosis is still regarded as a rarity and not often enough considered a possibility at the bed-side in the false belief that its recognition is only possible in the dead house.

Coronary thrombosis is not at all uncommon. Christian[2] reports seventy cases in ten years and Nathanson[17] found that coronary sclerosis was a frequent cause of death. Indeed, its recognition, if not, in truth, its incidence is on the increase.

Thanks to Herrick[8-9] and many other American observers, its clinical picture within the last decade has been pretty well established, so that today, "cardiac infarction stands out as a clean-cut clinical entity, easy of recognition by the practising physician."[2]

Its proper recognition is of great importance, for cardiac infarction may dramatically mimic an acute surgical abdomen, or under the guise of an innocent "indigestion" may lead to an acute or protracted heart-failure.

Coronary thrombosis hits the mechanic as well as the professional or business man; women not quite so often. It prefers people in their late forties or early fifties, especially the arterio-selerotic and the cardio-renal. It may attack the apparently well and young.[2-17-25] Syphilis,[14] found occasionally, plays no important role. Occurring more often in those who already have had anginose pain or heart-weakness it may be the first and often the last manifestation of grave cardiac damage.[23]

Sudden in onset, it is characterized by excruciating pain, constant, lasting hours, unrelent-

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ing, not relieved by nitrites, and barely by morphia. Situated in the lower sternum, not rarely in the epigastrium, it often lacks the classical radiation of the ordinary angina and is frequently associated with gastric symptoms;[16-18-12] nausea, vomiting, and diarrhea. The pain may be slight; indeed, it may be absent; and the infarction is ushered in by an acute cardiac collapse[18] with marked weakness and fear of movement, cyanosis with a disproportionate dyspnea, and an acute congestive heart-failure.

The pulse is rapid, weak and running; usually regular, it may have the features of an auricular fibrillation, paroxysmal tachycardia or block. Hammer's case had a rate of eight per minute.[7]

The appearance of the patient is that of shock; it betrays suffering and apprehension; the mind is clear. The face is cold and clammy and has a highly suggestive color, "like a leaden tint spread over an earthly hue of skin." (Samson[15]). It may be red[6-23] and flushed, and rarely jaundiced.[16-23]

Fever appears within a day; usually not high, it may reach 104; or it may be normal or even subnormal. The pericardial rub was first described by Leyden and Kerning. Its significance was fully appreciated by Gorham[4], who having found it in five out of his six cases, vested it with diagnostic dignity. The friction is very soft, disappears and reappears, and is indicative of a reactive pericarditis over a necrosed heart-muscle. Of great diagnostic value when present, it is more often absent, probably due to infarction of the deep or posterior myocardium.

A moderate leukocytosis of 14,000-22,000 is nearly always present. In one of our fatal cases the count was 40,000 with a temperature of 99.6. The fever and leukocytosis result from toxic absorption of the infarcted muscle.

The blood-pressure, previously normal or high, shows a marked drop; it may, however, be normal or even high. One of our cases had a blood-pressure of 150 twelve hours before death.

The cardiovascular apparatus may or may not show any deviations from the normal and arteriosclerosis is not always demonstrable in the peripheral vessels.

The crackles along the posterior pulmonary bases are found early and an acute suffocative pulmonary edema may set in with the pain. The urine is diminished and contains albumin. Abdominal tenderness and board-like rigidity may occur.[16-18]

Most cases show changes in the electrocardiogram. Alterations in the T wave are the most constant.[19-24] It frequently springs directly from the downstroke of the R, develops an early high peak, quickly becoming inverted, diphasic or isoelectric. Smith demonstrated similar changes in animals by ligating the coronaries.[22] The Q R S complex is disturbed and its amplitude is low. Ventricular paroxysmal tachycardia occurs.[20]

It will bear emphasis, however, that myocardial infarction has no pathognomonic electrocardiogram and that a normal electrocardiogram does not rule out the condition. Very extensive sclerosis of the heart with obliteration of the descending coronaries were found postmortem with negative electrocardiograms.[3]

Acute fatal cases of infarction show coarse granulation of the muscle-fibres with a lymphocytic and at times a marked polymorphonuclear infiltration. The older cases present a fibrous myocarditis with moderate hyperthropy and a general vascular sclerosis, most marked in the coronaries.[23] Reactive pericarditis is found in 25%.[11-12] The commonest site of thrombosis is the anterior descending branch of the left coronary with infarction of the inner wall of the left ventricle and the interventricular septum.[11-12] Rupture and aneurysmal dilatation of the left ventricle is not uncommon.

The prognosis while always grave is not invariably fatal. The coronary arteries have been shown by experimental ligations in animals, clinical observations with necropsies, and special roentgenologic methods to have considerable anastomoses. "Sudden death often does occur, yet at times it is postponed for hours or even days, and in some instances a complete recovery, i. e. functionally complete recovery takes place."[8] Herrick desribes four groups;[9] where death is instantaneous without pain, respiratory agony, or facial distortion; fatal cases parading as severe angina; mild cases; and cases that recover with a considerable crippling of the myocardium, ending fatally after a shorter or

longer time. Thirteen out of nineteen of Wearn's cases died suddenly.[23]

The possibility of cardiac infarction should be borne in mind and strongly suspected when a person past middle life develops an acute slowly progressive heart-failure after a so-called "acute-indigestion"[16] or upon the appearance of an angina, agonizing and lasting, and not responding to nitrites. The ashen-grey face, the weak and running pulse, the low blood-pressure, and basal pulmonary crackles are highly suggestive; the fever and the leukocytosis strengthen the diagnosis. The pericardial rub and changes in the T wave, while highly diagnostic, offer additional but not indispensable information; both may be absent.

Right coronary occlusion may be surmised with a marked tachycardia (Lewis) regular or irregular, or when an enormous acute hepatic enlargement appears.[16]

The severity of the pain, the futility of nitrites and even morphia, its duration and frequent association with gastric symptoms, fever, and leukocytosis, and the "flutter and lability of the heart, the rapid irregular pulse, the waning heart-sounds, the dyspnea and cyanosis," readily differentiate it from the ordinary angina.

The acuteness and severity of the pain, its localization in the upper abdomen with nausea and vomiting, and the early appearance of shock suggest a surgical abdomen:[18-13] a perforated ulcer or an acute pancreatitis. The fever and the leukocytosis and the not infrequent abdominal tenderness with rigidity[13] stimulate it all the more. It may resemble a biliary colic; indeed, in the middle aged gall-bladder disease and coronary thrombosis may co-exist.[12]

The age of the patient with a very carefully elicited history of digestive disturbances having begun in the early twenties or thirties, and the absence of marked cardio-vascular findings help in the differentiation. On the other hand the rapid and especially the irregular pulse, the pulmonary basal moisture, the disproportionate dyspnea, and the low blood-pressure favor the diagnosis of the coronary thrombosis. The pericardial rub and an abnormal electrocardiogram, when present, are of distinct help. One of our cases admitted as an acute pancreatitis was diagnosed in the ward as an effusive pericarditis. Indeed, the severe dyspnea, the barely audible heart-tones, and the wide cardias dullness, suggested it very strongly. The history of previous anginal attacks, the agonizing pain, the facies of collapse, the thready pulse, and the blood-pressure of 80 soon led to the correct diagnosis.

Another patient, a woman of sixty, with a temperature of 104, a leukocytosis of 24,000, dyspnea, and rapid pulse was admitted as a pneumonia. She gave the history that two days before, in the best of health, and while at a party, she was suddenly seized with a mild discomfort in the lower chest, terrific weakness and marked dyspnea. The hurriedly summoned physician (Dr. Liederman) found her in shock, with rapid pulse, ashen-grey, cold and clammy. Examination revealed no dullness, marked pulmonary edema and a pericardial rub. I recall a similar case at the Jubileum Spital, Vienna. An old woman with a clinical diagnosis of pneumonia was demonstrated at the autopsy as an acute right coronary thrombosis by Prof. Erdheim.

Rarely coronary thrombosis may simulate a spontaneous pneumthorax or a diaphragmatic hernia.[9]

Relief of pain, sparing of the damaged heart, and the support of the collapsing circulation are the therapeutic essentials. Morphia in sufficient doses and at frequent intervals to secure rest of body and mind. Unnecessary examinations are best avoided. Digitalis, warmly recommended by Herrick[8-9] and found of distinct help by Wearn,[23] is used with caution by Christian.[2] The average case needs digitalis only when congestive heart-failure appears or threatens. Caffein is of value. Christian speaks well of camphor[2] in cases with a rapidly changing heart-rate and with the so distressing and sleep-robbing Cheyne-Stokes breathing. No instance of cardiac rupture followed stimulation.[23]

Abdominal distension thould be carefully avoided by a dry diet and suitable measures. Rest in bed, complete and prolonged should be insisted upon. Only when the pulse and blood-pressure have become normal or nearly so, is it safe to get the patient out of bed, watching carefully his response to exertion. With convalescence well established, the patient should be taught to live well within the limits of his restricted myocardial capacity.

SUMMARY

1. Coronary thrombosis is a well defined clinical entity and can be diagnosed with a considerable degree of certainty.

2. It may be ushered in as a severe and lasting angina, as an acute cardiac collapse with weakness and marked dyspnea, or as an "acute indigestion," sooner or later leading to heart-failure.

3. The ashen-grey face, the cold and clammy perspiration, the weak and rapid pulse, the basal pulmonary moisture, and low blood-pressure with the fever and leukocytosis makes the diagnosis almost certain.

4. The pericardial rub and the abnormal T wave, highly diagnostic when present, do not negative the diagnosis of coronary thrombosis by their absence.

5. The localization of the pain in the upper abdomen and the frequent association with gastric symptoms may simulate an acute surgical abdomen and require careful differentiation.

6. The prognosis, while always grave, is not invariably fatal.

7. Relief of pain, sparing of the damaged heart-muscle, and the support of the collapsing circulation are the chief therapeutic indications.

8. Coronary thrombosis requires a prolonged rest in bed and a carefully guided convalescence.

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25. Vaquez; Diseases of the Heart.

DISCUSSION ON PAPERS OF DRS. CARR AND TRACE

Dr. Harry Durkin, Peoria: Paroxysmal tachycardia occurs almost as frequently in normal hearts as in hearts subject to organic disease. May it not be an essential condition in the same sense that hypertension is essential? In other words, may not its occurrence in organic heart disease be incidental rather than sequential?

In normal hearts these paroxysms, provided they are not too long, are not serious. In diseased hearts they break down the remaining caridac reserve and even precipitate death. The prognosis, therefore, is based upon the underlying disease; and a careful inventory of the heart, independently of the paroxysm, is imperative.

A second point worthy of emphasis is the relative infrequency with which this condition is recognized. The milder cases are frequently labelled as neurotics; while the more severe ones in which the attacks are superimposed upon a heart which is already damaged are labelled as "acute dilatation," or pulmonary edema. In the majority of cases so diagnosed, they are due to excess strain imposed by the inception of a normal rythm, or by a coronary accident.

In the prevention of attacks, the removal of emotional strain, the correction of digestive disorders, and the avoidance of excess in alcohol, tobacco and coffee have long been recognized as routine procedures of value. In his experience, quinidine sulphate has been a preventive measure par excellence, abolishing attacks entirely in the milder cases and reducing the frequency and duration of the more severe cases. It is important that this drug be continued indefinitely in much the same way as luminal is used in epilepsy. Not infrequently patients have discontinued and other attacks have been precipitated and been rather severe.

In the treatment of the actual attack vagal pressure is of degnite value. After finding the carotid arteries, gradually increasing pressure is made, while listening to the open, until the patient complains of pain.

Pressure on the eye-balls, to the point of moderate discomfort will sometimes stop the milder attacks. Induction of vomiting by the patient himself works in quite a few cases. An attack which lasted 36 hours stopped abruptly during a violent thunder clap. The case had resisted all measures.

Dr. White, of Boston, reported several cases with attacks of very long duration which responded to rapid digitalization after all other measures failed. Maintenance of digitalization served to decrease the frequency and duration of the attacks.

Dr. Trace has covered the essential features of coronary thrombosis. American clinicians have been almost exclusively instrumental in establishing it as a clinical entity. Even at the present time only one or two text-books give it more than passing mention. It is no exaggeration to say that it has not yet arrived on the diagnostic horizon of a large proportion of the medical profession.

In ordinary angina the blood pressure does not fail;

it shows a rise during the paroxysm; in coronary thrombosis it shows a rapid and progressive fall. In a recent case it dropped to 40 systolic and continued at 40 to 60 systolic three weeks following the attack. Only now, after two weeks of rest, has it reached 120.

Repeated blood pressure observations are perhaps the most trustworthy index of the progress of the case.

As statistics begin to accumulate one is impressed by the recoverability of a large proportion of these cases, 20 to 40 per cent.

We used to think the coronary arteries were end arteries, and when one was occluded everything was up. We now know they are not end arteries, and if a large artery is not occluded nature will establish an anatomosis and myocardial repair of the infarcted area will ensue.

The second most important point is the care with which the patients are managed after their attack. These patients should be kept in bed absolutely quiet for at least two months, depending upon the severity of the attack. Absolute quiet, both mental and physical, is imperative. In order to attain this, morphin is a drug par excellence and should be used without fear and used generously.

I have not used digitalis at all unless signs of congestive failure appear. They die anyway. I doubted whether digitalis did them any good. There is a certain amount of danger in using digitalis.

Here is a heart already greatly damaged and nature is trying to give it as much rest as possible. And the use of any cardiac stimulant is liable to precipitate ventricular fibrillation which is fatal, or rupture. The main idea is to play for time and avoid whipping the damaged or struggling heart with any cardiac stimulant and give nature a chance to repair the infarcted area.

Dr. Frederick Burcky, Chicago: I have here the heart of a patient who died eleven days ago. (Specimen Exhibited) I am passing it around. I am calling attention to the right coronary artery, under which there are two sticks. There is a small piece of paper under the aortic valve, which has on it quite a growth.

Dr. Moore was kind enough to do the post mortem for me. The specimen, at postmortem, showed very clearly the condition of this man's heart. I speak of it because it brings a case before you.

The left heart had good color; but the right heart, when Dr. Moore lifted it out of the chest, was extremely soft; about the color of milk chocolate, and very thin— you can see that. The right coronary artery about three-fourths of an inch from its origin, had a construction, the lumen being not over a millimeter and a half in diameter. The smaller vessels were pin point at their openings. Although it had no acute coronary obstruction, it provided an excellent field for a very small thrombus which could easily come from the lesion on the valve.

The man entered the hospital February 2 where he had the first stage of a prostatectomy. March 8 he had the second stage with removal of the prostate. About five or six days following the second stage of his operation, he developed a chill with rather a marked respiratory embarassment. There was a murmur present over the entire precordium, as noted by the Interne.

He had been home a little over two weeks from April 14 and feeling perfectly well when he went down to the doctor's office. But on the way home, he became uncomfortable with a slight substernal oppression. That night he had a chill with a fever of 103. Following that until the time of his death, these chills occurred from two to eight hours apart. The average temperature shortly following would be 103.

At the time of the chill he was rather markedly cyanotic. His wife noticed his lips and face were very blue. May 8 he died of an acute dilatation of the heart. I thought that probably he had an old arteriosclerosis with thrombotic obstruction of the right coronary artery superimposed upon it. This thrombus we were unable to find anywhere in the post mortem specimen on either side.

This case illustrates the absolute necessity of keeping these patients quiet in bed. Don't let them get up even to go to the bathroom for a period of weeks or even months.

Some recent work has been done by Gold, experimentally, with digitalis in coronary obstruction. He has run a series of experiments with cats in which the coronary arteries have been tied off. He found that in his experimental work there is no more predisposition to ventricular fibrillation with the use of digitalis than there would be otherwise. That is, the digitalis index of these cats per kilogram is 102 per cent, of the normal ones. In other words, the amount of heart muscle that would be put out of commission by ligation of the coronary artery without immediately killing the cat has practically no influence on the digitalis therapy. That is experimental, and is more or less opposed to our present clinical belief in these conditions.

At Rush Medical Heart Clinic, paroxysmal tachycardia is rather rare. I have only seen about half a dozen in five years. They have occurred in younger individuals of neurotic types. The one factor most important is the psychic factor of worry or anxiety. Whenever any of these individuals had any tremendous amount of worry or anxiety, usually there was an attack precipitated.

One woman had a husband inclined to be alcoholic at times. She would come in a few days later telling of a paroxysmal attack.

I have been more or less disappointed in quinidin.

Dr. Samuel E. Munson, Springfield: It has only been in recent years that there has been mention made of coronary rupture. We had a realization of the serious damage done to the heart in these cases.

Now, the Doctor here makes the startling remark, probably startling to some of us, that even these cases of coronary rupture recover. Many of the cases of angina pectoria that men saw some years ago and recovered, they thought were not angina pectoris. In fact, the textbooks rather taught that all cases of angina pectoris were usually instantly fatal.

My point is that probably many of the cases of those men who watched their heart cases carefully, were

cases of coronary rupture and recovered even years ago without the recognition by the attending physician. The point which I wish to emphasize particularly is the possibility of the attending physician or the practitioner possibly preventing these serious things from happening in his heart cases where he has had the opportunity of having them under observation.

It was my misfortune last year to lose about four cases. In at least three of these cases we were quite positive it was coronary rupture. One of these men I had under observation for three years.

At the time he was examined he was cautioned in regard to his golf. Last year he returned from Florida, feeling better than he had at any time. His wife told me he played at one time in Florida 36 holes of golf. Within six weeks of his return from Florida, after playing on Saturday 18 holes of golf, on Sunday morning at 10:30 I saw him in this frightful condition, which the Doctor has so carefully pictured. That clammy sweat. The heart rate may not be disturbed. But with the dreadful pain only relieved by morphin, the rise of temperature, the increased leukocytosis, the involvement of the lungs at the base, and always the fine rales.

This man died in about 48 hours. It is a picture which no one will ever forget.

Dr. Nathan S. Davis, III., Chicago: I have not happened to see any case of coronary thrombosis recently. There are some cases I saw before I became acquainted with the syndrome that I think undoubtedly were that.

However, I have had three or four interesting cases of paroxysmal tachycardia. One case was associated with luetic infection and was of three days duration. He had previous attacks; the first one at least fifteen years before the one in which I saw him. Another case was in a medical student, who has attacks of paroxysmal tachycardia associated with slight migraine and with hemianopsia that lasts about as long as does the tachycardia.

A third is a case of mitral disease in which there is one of the most musical murmurs I have ever heard. He has had several attacks of paroxysmal tachycardia, ordinarily of short duration, and usually coming on after overeating or indigestion. The last attack he had was a paroxysmal auricular fibrillation rather than a tachycardia from the clinical findings at the time of the examination. That attack stopped very promptly after having him hold his breath for 60 seconds or so. He has had practically no attack since and has been using quinidin in small doses daily.

The fourth case was one of paroxysmal fibrillation in which the first attack came on while this man was in his fifties, while he was swimming in the tank, and seeing how many disks he could pick up off the floor of the tank, without coming up.

In other words, he was holding his breath for a great length of time. When he came up, he had a paroxysmal attack, lasting one hour or so. He has had one attack since then which was after overeating. Sometimes he gets premonitory symptoms that lead him to believe he is going to have an attack. He finds that taking quinidin at those times causes almost immediate relief of these symptoms.

Dr. James G. Carr, Chicago (closing): I am very grateful for the discussion which we had because Dr. Durkin and Dr. Burcky and Dr. Davis practicularly have brought out facts not stressed in the paper for lack of time.

I was interested in what Dr. Davis had to say about the way in which he distinguishes between paroxysmal auricular fibrillation and tachycardia. Personally, I believe that essentially they are one and the same. They are both precipitated by nervous factors. The fibrillation very often suggests the presence of a thyrotoxicosis.

In general I am opposed to the use of the word "essential." When we use the term essential tachycardia, we are apt to give up the attempt to discover the exciting cause. Furthermore, the use of such a term makes it easy to overlook the fact that experimentally and clinically paroxysmal tachycardia appears for the first time in many cases after serious damage to the heart. It may stop after hyperthyroidism is removed.

Paroxysms, which can only be described as essential, do occur. If we regard an attack as an essential paroxysmal tachycardia, we must be careful not to overlook the many possible organic causes of the condition.

What Dr. Burcky had to say is very interesting, especially his remarks concerning the use of digitalis after coronary obstruction. In this day and age we are being taught to digitalize patients. The use of digitalis means to many of us large doses. Subsequent to coronary obstruction, we know there is a tendency to auricular fibrillation and to ventricular tachycardia and fibrillation. Toxic doses of digitalis may cause abnormal rhythms of which one type is ventricular tachycardia. If we give digitalis to the patient with coronary obstruction, we know this with certainty, both the disease and the drug tend to the production of an increased irritability of the ventricular musculature. If decompensation is present, it may be necessary to use digitalis but I believe it should be used with caution and not used except for definite indication. The work cited by Dr. Burcky is interesting and I would be the last to discredit its clinical value. As yet, however, it is hardly allowable to carry on the treatment of patients with coronary thrombosis, whose hearts are usually the seat of widespread vascular damage of varying degree, upon a plan based on results obtained from experimental work on the cat's heart in which there is no recorded damage to the heart other than that produced experimentally.

One thing more: I wondered what Dr. Trace would have to say in regard to the presence of a normal electrocardiogram in these cases. We are not apt to have the opportunity to make an electrocardiogram at the time of the attack. The patients come to the electrocardiographic room afterwards. I would be glad to know if they get normal electrocardiograms. I have a feeling that there will be electrocardiographic attachments installed in certain rooms in the hospitals within the next few years. When such are established

in the hospitals generally, it seems to me that the surgeons in these uncertain cases will have to turn to the cardiograms for some help as to whether or not he is dealing with an abdominal or cardiac condition.

Dr. Isadore M. Trace, Chicago (Closing): Dr. Durkin re-emphasized the diagnostic importance of the rapid and, especially, variable pulse in coronary thrombosis; also the prognostic bearing that repeated blood pressure readings may have.

Now, in regard to the normal electrocardiogram in coronary thrombosis. My own electrocardiographic experiences have been very limited.

I have cited the work of Drury in the *London Heart Journal.*

About the use of digitalis in coronary thrombosis. The remarks of Dr. Carr will bear repeating. Digitalis is a very wonderful drug, but it is better to style digitalis a cardiac poison. For if we bear this in mind we will clearly realize its value and also its dangers.

Digitalis, even in the normal heart, is likely to produce various disturbances. Auricular fibrillation may be induced.

The deductions that one could make from the work on cats, I think ought to be drawn very carefully, for, after all, their coronaries have been ligated but their heart muscle, to begin with, was a sound muscle.

Personally I rather fear the use of digitalis, especially in large doses, in coronary thrombosis. We have been giving it when confronted with a vital indication; when there are signs of failure, and these cases usually make a fatal exit.

CASE OF CRETINISM AND MYXEDEMA*

GERARD N. KROST, M. D.
CHICAGO

Case 1. L. S., aged 10 years, entered Wesley Memorial Hospital, Nov. 25, 1916, at the age of 4 weeks. Weight 7 lbs.

Complaint: Inability to nurse, rapid loss of weight, six lbs. loss from birth. Unable to nurse from birth, inability apparently caused by the thickened protruding tongue.

Birth History: Very cyanotic baby at birth. Resuscitation difficult. Birth weight 13 lbs., labor difficult. First baby, first pregnancy.

Family History: Father and mother living and well and in good health. Mother has a rather large goiter.

Examination: Baby apathetic, hard to rouse. Hair, coarse and abundant. A wrinkled hairy forehead, ears large, eyes normal, low, flat saddle-shaped nose, lips thick, tongue protruding, thickened and its mucous membrane loose and fissured. Chest: Heart-normal tones. Lungs normal. Abdomen large, pendulous, with large umbilical hernia. Extremities, fingers and toes short and stubby, skin relaxed and in folds, dry to touch and with a doughy coarse feeling.

Diagnosis—Cretinism.

Treatment and Course: The baby was placed on ¼ grain desiccated thyroid per day. Feeding was given by tube, as all attempts to feed by bottle or dropper were unsuccessful. All feedings were by stomach tube until the 24th day after entrance, when about half of the feedings in the 24 hours were taken from the bottle. By the 32d day all feedings were taken from the bottle.

The temperature, which was 96 on entrance, remained below 98.6 rectally until the 18th day when it reached 99.2. It remained normal until discharge. The baby was discharged on the 71st day with little improvement in weight, having only gained 3 ounces in that length of time. It, however, was alert; the tongue, while still thickened and protruding, was very much smaller. The skin had lost considerable of its dry, doughy feeling. Its progress from a weight standpoint from then on was very good and at a year the boby was well nourished.

The normal development in physical strength and mentality have been much retarded. She sat alone at one year, walked alone at 3 years. Simple words were first spoken indistinctly at 3 years. Teething was about normal. The tooth structure was poor, early decay took place. She was able to dress a doll at 4 years. She jumped with both feet at 8 years; climbing was done with the knees until recently. She now uses her feet in climbing. At present the child is quite awkward, particularly going up stairways and inclines. Her legs are weak in comparison to the arms and she falls easily. The hand grip is very strong. When rising from the floor she rises by pushing with the hands until the legs are almost completely extended. She now laces her own shoes, and partly dresses herself but very slowly. She has done this for two years. She has washed dishes for a year, dusts furniture, sews on doll clothes. She plays good-naturedly with other children unless crossed too much, then shows considerable rage. She is attending school and is in the second grade. Her writing is large and irregular. She knows part of the multiplication table of 2. She reads and writes a little.

She is receiving one grain of desiccated thyroid

*Presented before Chicago Medical Society, November 10, 1926.

three times daily. The original ¼ grain dose three times daily was increased to 1 grain three times daily by one year and has been held there constantly since. This is an unusually large dose for the early years, 1 grain in 24 hours being the customary dose at 2 years. The mother notices that if there is a lapse in thyroid medication the eyes cross and the tongue protrudes more. The basal metabolism taken Nov. 7, 1926, was minus 3.8%, showing about normal metabolism and indicating that the correct amount of thyroid is being given. Untreated cretins have a basal metabolism rate of minus 40.

Her symptoms now of cretinism, while not marked, still are characteristic. The skin is mottled, cold, cyanotic, coarse in texture. She constantly complains of being cold with the heaviest amount of clothing. The body is short and squat. The abdomen is still too large. The lordosis is not marked but still present. The face is broad, eyes wide apart, the root of the nose is low, mouth is held open, the neck is short, the teeth are of very poor quality, the hair is coarse and dry, the pelvis is narrow, the legs are short, the hands are short and thick, walking is in a swaying, unsteady manner, and the head is held slightly forward. Her height is 46¼ inches, 5 inches below average height of a 10-year-old girl. Her weight is correct for length, 53 lbs. Roentgenogram of the wrists show 7 of the carpel bones ossified, the 8th does not appear normally until 11 years. Her bones, therefore, do not show a delay of ossification. The radial and ulnar epiphyses are not fully developed as normal. In untreated cretinism osteogenesis is retarded, the bones are of normal shape, but of reduced size. The epiphyseal centers develop late or are entirely absent. This is particularly easy to demonstrate at the wrist.

The diagnosis of cretinism in this case according to most authorities is incorrect and should be congenital myxedema. A classification used by Dr. Chas. P. Emerson in Abt's System of Pediatrics is the following: 1, congenital myxedema—symptoms present at birth; 2, early infantile myxedema—manifestations beginning in the 1st year; 3, late infantile myxedema—onset between 2d and 3rd year; 4, incomplete forms of atrophic myxedema—corresponding to the myxedema of adults. In the first and second group a total absence of thyroid from degeneration or a congenital absence from a failure in embryonic development is present. The delay in symptoms in the second group being explained on the basis that the baby receives thyroid secretion through the mother's milk, which grows insufficient in quantity as the degeneration of the thyroid continues. In the third and fourth group a degeneration takes place after birth. True cretinism Emerson narrows down to the group developing endemically in certain localities in Switzerland, Austria and Italy, in which a condition of dwarfism due to retarded development is associated with a greater or lesser degree of mental defectiveness and changes in the thyroid gland, bones, skin, genitalia and organs of special sense, this condition being associated with endemic goiter.

Congenital myxedema must be differentiated from cretinism, dwarfism and Mongolian idiocy. To diagnose cretinism from congenital myxedema is almost impossible as those most competent to know are in disagreement as to whether they are one and the same condition. The one occurs sporadically, the other endemically. The clinical manifestations are the same. In the cretins of endemic type 63% develop a marked goiter, so the presence of goiter would differentiate. In true dwarfism changes in the skin, such as absence of sweating and thickening would not be present. Roentgen-ray plates of the bones would not differentiate as in both there would be a retardation of osteogenesis. The dwarfs are of normal mentality or slight impaired mentality. The achondro-plastic dwarf has short extremities and almost normal trunk, with only a slight mental impairment. Skin changes are absent. Roentgen-ray plates would show changes only in the bones of the lower extremities. Mongolian idiocy might occasionally confuse, particularly as Mongols may have considerable thyroid deficiency. In Mongolian idiocy the hair is usually fine, the skin soft and moist, the eyes are characteristic, narrow lid apertures, epicanthus (the cycle shaped vertical fold of skin over the inner canthus) slanting eyes, inner canthus lower than the outer. The head is very flat. Double jointedness is present. The curved shortened fifth finger is quite characteristic. The Mongol is usually very restless and takes an active interest in what

is going on around him, while the cretin is apathetic.

The unusual features of this case are the early severe symptoms and rather good results accomplished by early and continuous treatment. We have under our observation in the clinic another cretin who was not treated so early and the development, both physical and mental, is far less than in this child.

Case 2. Shown through the courtesy of Dr. A. A. Goldsmith:

E. C. Occupation iron moulder, aged 53 years. Seen first Jan. 9, 1926. History of six months' duration, soreness over epigastrium without reference to food intake. Constant desire for something to eat. Constipated; 32 lbs. loss of weight in 6 months. Examination: pulse 120, tremor of fingers, Von Graefe sign present. Thyroid not enlarged. Jan. 23, 1926, basal metabolism +53. Operation advised and refused. Roentgen-ray treatments started Jan. 26, 1926. Patient had a total of 22 radiation treatments, totalling 120 minutes radiation time, divided into 3 series of 40 minutes each. These three series of 40 minutes each were divided up over four areas, each receiving 10 minutes during the series or a total of 30 minutes each during the entire treatment. Areas treated were one each over right and left lobes, also one over region of thymus with one area through the posterior surface of the neck. The entire treatment was spread over a period of 3 months and 8 days, or from Jan. 26, 1926, to May 8, 1926. Basal metabolism rate showed plus 53 at the beginning of treatment. Treatment discontinued when basal metabolism rate showed plus 22. Basal metabolism test one month and ten days after stopping treatment showed plus 6. July 10 basal metabolism rate -19. Skin is coarse and white, voice is cracked, he is clumsy and, according to his own observation, his mentality is sluggish. Oct. 23, 1926, basal metabolism rate -13.

This is a case of myxedema brought on by either a degeneration in thyroid tissue, or in thyroid secretion from exposure to the roentgen ray. This resulting damage is probably not permanent and will probably disappear under thyroid medication. He is receiving one gram of disiccated thyroid a day, larger doses not being tolerated. Larger does cause headache and a sensation of fullness in the head.

Book Reviews

MEDICAL CLINICS OF NORTH AMERICA. New York number. Vol. X, No. 4. January, 1927. Philadelphia & London. W. B. Saunders Company.

The contributors to this number are Doctors Bullowa, Diamond, Donaldson, Eppstein, Goodman, Graves, Held, Hoyt, King, Klemperer, Kraetzer, Marcus, Miller, Mosenthal, Myerson, Ornstein, Perkins, Strauss, Wechsler. All from the medical and surgical staff of the Lenox Hill Hospital, New York, Symposium.

TEXT BOOK OF BIOLOGICAL CHEMISTRY. By James B. Summer, Ph.D., New York. The Macmillan Company. 1927. Price, $3.50.

This book is means first and last for the elementary student. The author's aim has been to set before students as briefly and simply as possible the principal facts and theories of biological chemistry.

A MANUAL IN PRELIMINARY DIETETICS. By Maud A. Perry, B.Sc., St. Louis. The C. V. Mosby Company. 1926. Price, $1.25.

This work is intended for nurses instruction in preliminary dietetics. The work follows the plan of combining the theory, demonstration and the practical laboratory work.

HOSPITAL HOUSEKEEPING AND SANITATION. By Nora P. Hurst, R. N., St. Louis. The C. V. Mosby Company. 1926. Price, $1.25.

This work is intended to supply a long felt need by instructors in hospital training schools. The work is presented from the teaching standpoint. All practical demonstrations are outlined in detail.

Society Proceedings

ADAMS COUNTY MEDICAL SOCIETY

The annual social meeting of the society, January 11, 1927, was held under the auspices of the Woman's Auxiliary. The members assembled at the Elks' Club where a splendid dinner was served at 8:15 P. M. to 53 persons. After the dinner Mrs. Harold Swanberg, President of the Woman's Auxiliary, introduced the entertainers. Dr. and Mrs. Frank Cohen gave a duet-solo on the piano, which was enjoyed by everyone. Mrs. H. S. Maupin rendered several solos, being accompanied on the piano by Mrs. Frank Cohen. The singing was very much appreciated by all. Following this several of the members were called upon for a few remarks. Dr. C. D. Center, in response to his toast asked whether the members wished a song or a speech. The expression of the members was for a song and Dr. Center responded in a manner that surprised many of our members. Following the musical numbers and speakers a bridge party was arranged and seven tables were filled. The favors for the men were won by Drs. Blomer, Harris and Jurgens and by the ladies, Mesdames Caddick, Steiner and Milton Bitter. During the dinner and throughout the entire evening, music was furnished by the Malambri

Orchestra. An opportunity was also provided for some of the members to enjoy amusement at cards other than bridge. Mrs. C. D. Center, as Chairman of the Entertainment Committee of the Woman's Auxiliary, arranged the program in co-operation with Dr. Grant Irwin, Chairman of the Entertainment Committee of the Medical Society. The entire affair was a success and did much to encourage good social feeling that should exist between the members of the profession and their families. Adjournment was made about 1130 P. M.

HAROLD SWANLEY, M. D., Secretary.

ALEXANDER COUNTY

At the December meeting of the Alexander County Medical Society the following officers were elected: President, Dr. J. K. Rossen, Tamms; vice-president, Dr. Jas. M. Gassaway, Cairo; secretary and treasurer, Dr. B. S. Hutcheson, Cairo; delegate, Dr. W. F. Grinstead, Cairo; alternate, Dr. Jas. S. Johnson, Cairo.

I am acting as secretary for Dr. B. S. Hutcheson who is confined to St. Marys Hospital with a fractured hip which he sustained about seven weeks ago when he was struck by an auto.

Yours very truly,

JAS. S. JOHNSON.

COOK COUNTY

Regular Meeting, January 5, 1927

Sarcoma. Illustrated with Lantern Slides.....
.....Joseph C. Bloodgood, Baltimore, Md.
Discussion—Irwin R. Schmidt, University of Wisconsin; James P. Simonds, D. J. Davis, J. J. Moore

Joint Meeting Chicago Medical Society and the Chicago Roentgen Society, January 12

1. Radiography an Indispensable Aid in the Diagnosis of Chest Conditions.....
.....L. R. Sante, St. Louis, Mo.
Discussion.....Hollis E. Potter
2. The Practical Application of X-Ray Therapy in the Treatment of Skin Malignancies. (Motion picture, a part of the presentation).....
.....J. M. Martin, Dallas, Texas
Discussion.....Wm. Allen Pusey

Michael Reese Hospital Program

Arranged by "Baer Fund Committee," Jan. 19

1. "Group Study and Clinical Clerkships at the Michael Reese Hospital" (Committee on Clinical Teaching) (5 minutes).....W. W. Hamburger
2. "Iodine in the Preoperative Surgical Treatment of Goiter" (From the Thyroid Group)—(15 minutes).....D. C. Strauss
3. "Premature Infants: A Report of 160 Consecutive Cases Cared for at the Special Station at Sarah Morris Hospital" (From the Clinic for Premature Infants) (15 minutes).....J. H. Hess
4. "Roentgenologic Diagnosis" (From the Radiologic Laboratory) (15 minutes).....R. A. Arens
5. "Medical and Surgical Considerations of Jejunal Ulcers" (From Gastro-Intestinal Group).....
(20 minutes) .....L. Bloch, A. A. Strauss

Joint Meeting of the Chicago Medical and Dental Societies, Jan. 26, 1927

1. "Clara Cleans Her Teeth" (motion picture)....
.....By Thomas B. McCrum, Kansas City, Mo.
(This is the first showing of Dr. McCrum's new film which has just been completed under his direction in Hollywood.)
2. "The Community's Responsibility for Health Education." By Hugh S. Cumming, Surgeon General, United States Public Health Service, Washington, D. C.
3. "Some of the Diseases of the Soft Tissues of the Mouth, Differentiating Between Those of Primary and Those of Secondary Origin".....
.....By Thomas L. Gilmer
Discussed by.....William Allen Pusey, (M. D.)

ST. CLAIR COUNTY

The following programs have been announced:

January 7, Dr. Jos. C. Bloodgood, Baltimore, Md. "Cancer Control."

February 3, Dr. Mather Pfeiffenberger, Alton, Ill. "Diseases of Gall Bladder."

March 3, Dr. H. Milton Conner, of Mayo Clinic. "Condition Associated with Splenomegaly."

April meeting not definitely settled.

May 5, Dr. Wm. O. Krohn, Chicago, Ill. "Psychiatry in Relation to Crime and Disease."

June 2, Dr. Vilray P. Blair, St. Louis, Mo. "Plastic Surgery from the Patient's Viewpoint."

The Fall meetings are not yet arranged.

Approximately 1,000 of the laity attended the Bloodgood lecture in the East St. Louis High School, January 7.

The St. Claim County Society has a splendid attendance percentage record. A good crowd is usually present for each meeting.

I. L. FOULON, Secretary.

WARREN COUNTY

The Warren County Medical Society held one of biggest meetings in its history on Tuesday, January 4, 1927. The meeting was held at the Monmouth Elks Club, beginning at 4:00 P. M. with a talk on cancer by Gilbert Fitz-Patrick, M. D., Chairman of the Executive Committee for Illinois, of the American Society for the Control of Cancer.

Dr. Fitz-Patrick talked on the organization, its history, purpose, and illustrated his talk with motion pictures on the subject of Cancer.

At the same hour, Dr. Joseph Colt Bloodgood of Johns Hopkins University Medical School, Baltimore, talked at the high school auditorium to more than four hundred members of the Federation of Women's Clubs, and members of other organizations, including the teachers' association of Warren County, the subject of the address being "What every woman should know about Cancer."

A banquet was served at 6:30 P. M. at the Elks Club to nearly two hundred physicians and dentists of Western Illinois and Eastern Iowa. A short after dinner program was given, Professor Frank W. Phil-

lips, superintendent of Schools acting as toastmaster. The address of welcome was given by John Lugg, mayor of Monmouth. Mr. Lugg has more than the usual interest in the work of the medical profession, and this was shown in his address. The welcome from the Warren County Medical Society was given by Dr. Frank C. Winters of Monmouth. Other talks were given by Drs. Mather Pfeiffenberger of Alton, President of the Illinois State Medical Society, G. Henry Mundt, Chicago, President-Elect, and William D. Chapman, Silvis, Chairman of the Council.

At 7:30 the principal address of the evening was given by Dr. Joseph C. Bloodgood on his favorite subject, "Cancer." In his usual characteristic and forcible manner, Dr. Bloodgood told the results of his many years of investigations on the subject, impressing on all his listeners that we do know much more about cancer today than the profession knew twenty-five years ago.

Many illustrations were shown on the screen to emphasize many of the points made in the talk. Dr. Bloodgood stated that his records show that hopeless cancer of the breast has been reduced from 55 per cent. to less than 10 per cent, and the actual cures have increased from less than 10 per cent. to more than 60 per cent. He attributes these improvements to the fact that people have been given correct information concerning cancer. With an increase in our educational efforts there should be a diminution in the mortality from this disease.

Dr. Bloodgood is a hearty advocate of the periodic health examination or the annual health inventory, and believes it one of the best things to aid in the check of cancer.

He emphasized the necessity of frequent dental examinations, the proper selection of diet and other things of considerable importance in the consideration of the subject.

This meeting was the first of a series of meetings held in Illinois at which Dr. Bloodgood appeared on the program, and it was arranged by the American Society for the Control of Cancer, through the Illinois branch, of which Dr. Gilbert Fitz-Patrick is Chairman.

There were nearly two hundred physicians and dentists present, many of whom traveled as far as two hundred miles to hear Dr. Bloodgood. About fifty of this number came from Iowa and all were unanimous in their opinion that it was one of the best county society meetings they have ever attended.

CHARLES P. BLAIR, M. D., Secretary.

WHITESIDE COUNTY

The Whiteside County Medical Society held its regular business meeting at Morrison, Ill., December 30, 1926, at which time the following officers for 1927 were elected: President, Chas. H. Parker, Sterling; vice-president, A. H. Foster, Erie; secretary-treasurer, L. S. Reavley, Sterling; delegate, L. S. Reavley, Sterling; chairman legislative committee, H. L. Petit, Morrison.

The society voted to co-operate with the American Society for the Control of Cancer in education of the public.

L. S. REAVLEY, M. D., Secretary.

Marriages

WALTER W. ARMSTRONG, Chicago, to Miss Kathleen Musson of Kansas City, Mo., January 1.

MARY LEOLA CARRICO, Danville, Ill., to Mr. C. J. A. Dalziel of Winnipeg, Man., December 11, 1926.

THOMAS FRANKLIN DORNBLASER, Amboy, Ill., to Mrs. Maude Rider Brown of Fort Wayne, Ind., October 16, 1926.

SAMUEL L. KELLER, Waukegan, Ill., to Miss Edith Dahlstrom of Chicago, December 22, 1926.

CLYDE D. PENCE, to Miss Olive K. Weldon, both of Chicago, December 24, 1926.

Personals

Dr. Robert W. Edwards has been appointed health officer of La Grange, succeeding Dr. Jesse W. Carr, resigned.

Dr. Robert L. Whiteside has been appointed health officer of Zeigler to succeed the late Dr. Isaac A. Foster.

Dr. James Burns Amberson, Jr., addressed the Chicago Tuberculosis Society, January 13, at the Brevoort Hotel, on "Correlation of Clinical Roentgenographic Data in Pulmonary Tuberculosis."

Maud Slye, Ph.D., of the Otho S. A. Sprague Memorial Institute, addessed the Institute of Medicine of Chicago, January 28, on "Studies in the Nature and Inheritability of Cancer."

Dr. Albert M. Earel, Hoopeston, has been elected president of the C. & E. I. Railway Surgeons' Association. There are said to be ninety-nine surgeons in the service at the railway, sixty of whom were present at the annual meeting in Chicago, December, 1926.

Roger Adams, Ph.D., head of the department of chemistry, University of Illinois, has been awarded the Nichols Medal in Chemistry of the New York Section of the American Chemical Society for work on "The Acids of Chaulmoogra Oil in the Treatment of Leprosy."

Dr. Robert Z. Sanders was elected president of the staff of the Decatur and Macon County Hospital, Decatur, for the ensuing year, and Dr.

Charles C. Chapin, secretary. About fifty were present at the banquet and the election at the hospital, December 14, 1926.

Dr. John E. Gordon, assistant medical superintendent of the municipal contagious disease hospital, has accepted a position as medical director of the Herman Kiefer Hospital for Contagious Diseases, Detroit, Mich. Dr. Gordon has been with the municipal contagious disease hospital in Chicago about two years.

Dr. Alton S. Pope, assistant professor of epidemiology, DeLamar Institute of Public Health, Columbia University, New York, resigned to accept the position of chief of the bureau of communicable diseases of the Chicago Department of Health, held for many years by the late Dr. Herman Spalding.

News Notes

—St. Elizabeth's and St. Vincent's Hospitals at Belleville have merged.

—The Garfield Park Hospital is building an eight story addition which will cost $650,000; it will be ready for occupation by May 1.

—The Chicago Neurological Society and the Chicago Orthopedic Club held a joint meeting at the Drake Hotel, January 20.

—The new 225 bed addition to the municipal tuberculosis sanatorium will be ready for occupancy about August 1; this will increase the capacity of the hospital to 1,200 patients. The sanatorium occupies a site of 160 acres at Crawford and Bryn Mawr avenues.

—The Institute of Medicine of Chicago, at its annual meeting, December 17, 1926, elected Dr. William Allen Pusey, president; Dr. Louis E. Schmidt, vice-president; Dr. George H. Coleman, secretary; Dr. John Favil, treasurer, and Dr. Ludvig Hektoen, chairman of the board of governors.

—The city council of Rock Island has accepted the bid of the county supervisors for the sanatorium property at Twenty-Fifth Avenue and Seventeenth Street, consisting of five acres of land, building and equipment. At a special election in September, 1926, the citizens of Rock Island voted to sell the property.

—The Chicago Surgical Society met January 7 at the Presbyterian Hospital for a clinical session. Among others, Dr. Jerome R. Head spoke on "Use of Lipoidol in Thoracic Surgery," and Drs. Allen B. Kanavel and Sumner L. S. Koch on "Dupuytren's Contracture, with a Report of Eighteen Cases."

—The Wieboldt Foundation distributed $67,000 December 24, 1926, to more than a hundred philanthropic agencies in Chicago, the largest donations being $10,000 to the United Charities; $4,000 to the Infant Welfare Society; $3,500 to the Visiting Nurses' Association; $3,000 to the Illinois Children's Home and Aid Society, and $1,500 to the Boy Scouts.

—The University of Chicago has named the clinic of internal medicine at its new medical schools on the Midway in honor of Dr. Frank Billings. Dr. Billings, who has retired from the active practice of medicine, is professor emeritus of medicine at the university, and for many years was professor of medicine and dean of the faculty at Rush Medical College. The Billings Medical Clinic will occupy the northwest section of the new medical quadrangle, which is nearing completion.

—Dr. Peter S. Winner, for eight years superintendent of the medical service at the Chicago Municipal Tuberculosis Sanitarium, has resigned to engage in private practice. The board of trustees has requested a committee, comprising Drs. Frank Billings, James B. Herrick, Ludvig Hektoen and Robert B. Preble, to pass on applicants for the position and to recommend a candidate. Details concerning applications for the position can be had by calling the central office of the sanatorium, 2049 Washington Boulevard, telephone Seeley 4110.

—The Pike County Medical Society, at a meeting in Barry, voted to erect a memorial tablet in the courthouse park at Pittsfield to commemorate the memory of the late Dr. John T. Hodgen and Dr. Henry Mudd, both of whom started their medical careers in that city. Dr. Hodgen, who later became a professor in the Missouri Medical College, St. Louis, was the inventor of the well known Hodgen's splint. Dr. Mudd also later became a well known surgeon, and was a teacher in the Missouri Medical College.

—Dr. Isaac D. Rawlings, state health officer, notes that measles and pneumonia are unusually

prevalent at this time, the rates being about the ordinary rates for late February and March, when these diseases are at peak prevalence; 1,200 cases of measles were reported last week and 445 cases of pneumonia. Pneumonia was the cause of death of 12,305 children under 3 years of age during the last six years in Illinois. The mortality for pneumonia among children was highest during the years when measles was widespread.

—Officials of the Illinois State Medical Society held a luncheon at the Morrison Hotel, Chicago, January 4, to award a prize of $500 to that woman's club of the state which, during 1926, did the most significant work in promoting the examination of pre-school children. As president of the Woman's Club of Metropolis, Mrs. George H. Mosely was awarded the prize, which was the gift of a physician. Metropolis is on the Ohio River in the southeastern part of Illinois. Among the other children benefited by this campaign were many who spend much of their lives on house boats.

—The northside branch of the Chicago Medical Society will hold a memorial meeting in commemoration of the late Dr. Albert J. Ochsner at the John B. Murphy Memorial Building, 48 East Erie Street, February 3, 8 o'clock. Dr. Walter W. Chipman, Montreal, Canada, will speak on "A Personal Appreciation of Ochsner"; Dr. William J. Mayo, Rochester, Minn., on "Ochsner's Work," and Dr. Allen B. Kanavel, Chicago, on "Surgical Progress." This is the first lecture of the Ochsner Memorial lectures established by the northside branch. All members of the Chicago Medical Society and their friends are cordially invited.

—The Chicago Lying-In Hospital, 426 East Fifty-first Street, of which Dr. Joseph B. DeLee has been chief of staff since its establishment in 1899, has become affiliated with the University of Chicago, it was announced, January 11. It is proposed to erect a new $1,000,000 hospital building at the university west of the New Albert Merritt Billings Hospital, and to sell the present hospital and use the proceeds for an endowment fund. The new hospital will provide 180 beds, a $100,000 laboratory is to be built by the university and an isolation pavilion, and its staff will be members of the department of obstetrics and gynecology of the university. A campaign to raise $1,000,000 for the new building will be undertaken by the board of directors, the president of which for the last eighteen years has been Mrs. Kellogg Fairbank. Mrs. Fairbank is reported to have said that the affiliation means a continuation of the "superb work done by the hospital during the last thirty years, and a guarantee that the present high standards of its medical directors will be continued indefinitely."

—At the January meeting of the Winnebago County Medical Society the following men were elected to serve for the ensuing year: president, Dr. A. W. Christenson; vice-president, Dr. W. L. Crawford; secretary and treasurer, Dr. K. G. Woodward; censor, Dr. Warren Ives; delegates, Dr. J. Tuite and Dr. E. H. Weld; alternate delegates, Dr. J. R. Porter and Dr. A. W. Christenson; medico-legal adviser, Dr. D. Lichty.

—Dr. Ralph H. Kuhns, Chicago, spoke at a meeting of the Illinois Children's Home and Aid Society, Chicago, January 3, on the subject of "The Importance of the Prevention of Malnutrition in Children."

—At a regular meeting of the Elgin Physicians' Club, January 10, 1927, Dr. Jesse R. Gerstley of the staff of Northwestern Medical School, spoke on "Preventive Medicine in Private Practice," as applied in early childhood. He emphasized the importance of tests for susceptibility to diphtheria and scarlet fever; the use of toxin-antitoxin as a successful prophylaxis in scarlet fever in proper dosage; the questionable value of pertussis vaccine. He announced the early appearance of a reliable strepto-coccic serum for measles prophylaxis following the discovery of the causative germ.

Dr. Gerstley's talk was very interesting, and appreciated by the Club.

—At the annual meeting of the Chicago Ophthalmological Society the following officers were elected for the ensuing year: Dr. Robert H. Buck, president; Dr. Oscar Cleff, vice-president; Dr. Charles G. Darling, secretary-treasurer; Dr. Clarence Loeb, corresponding secretary; Dr. Frederick Vreeland, councilor.

Dr. William Holland Wilmer addressed the Society on the establishment and aims of the new William Holland Wilmer Institute of Ophthalmology at Johns Hopkins Hospital, Balti-

more. He was elected an honorary member of the Chicago Ophthalmological Society.

—The Peoria Municipal Tuberculosis Sanatorium announces the opening of their new addition for occupancy. The total capacity of this institution is now eighty beds, which includes facilities for the separate care of colored patients. Patients from outside counties are also admitted.

—Dr. William Edward Fitch, formerly editor of *Gaillard's Southern Medicine,* Savannah, Ga., and of *Pediatrics* of New York City, author of Fitch's Dieto-therapy and of "Mineral Waters of the U. S. and American Spas" just off the press, and for many years specializing in New York City in Diseases of Metabolism and Medical Hydrology, has recently associated himself with the well known Buffalo Lithia Springs of Virginia, being an officer of the corporation and its Medical Director. The Buffalo Lithia Springs will be developed into a great American Spa—new modern metropolitan hotel, sanatorium and bathing establishment.

—Erratum: In the report of the Greene County Society meeting published in January Journal it was stated that Dr. J. S. Billings was elected vice-president. This was an error. Dr. N. J. Bucklin of Roodhouse was elected vice-president. In this connection it is suggested that the secretaries in reporting meetings for the Journal omit such details as who nominated and seconded candidates for office and other details that may be necessary or desirable as secretaries' records. Much unnecessary energy is spent on long lists of names of persons attending the meetings when the number is quite sufficient. The list of officers (presidents and secretaries), is corrected whenever information of changes comes to hand. This information should be forwarded promptly for publication. The Journal solicits news items, grams, resolutions, elections of officers, etc. especially reports of meetings, including pro-

Deaths

Edmund Joseph Abell, Joliet, Ill.; Hahnemann Medical College and Hospital, Chicago, 1881; member of the Illinois State Medical Society; aged 69; died, December 22, 1926.

Edward Wyllys Andrews, Chicago; Chicago Medical College, 1881; a Fellow A. M. A.; professor of surgery and clinical surgery, Northwestern University Medical School since 1883; secretary of the Section on Surgery and Anatomy, 1903-1904, and chairman, 1915-1916, of the Section on Surgery, General and abdominal, of the American Medical Association; member of the American Surgical Association; past president of the Chicago Surgical Association, and the Western Surgical Association; at one time member of the National Board of Medical Examiners; formerly on the staffs of the Michael Reese, Mercy, Cook County, Wesley and St. Luke's hospitals; aged 70; died, January 21, of coronary sclerosis.

John Percy Bennet, Glen Ellyn, Ill.; Bennett Medical College, Chicago, 1897; aged 56; died, November 22, 1926, at the Midwest Hospital, Chicago, of diabetes.

Anton Theodore Harris Holmboe, Chicago; University of Illinois College of Medicine, Chicago, 1886; formerly professor of orthopedic surgery, Bennett Medical College, Chicago; on the staff of the Norwegian-American Hospital; aged 69; died, January 3, of arteriosclerosis.

Frederick Charles Holzman, Chicago; Bennett Medical College, Chicago, 1912; on the staff of the Chicago General Hospital, where he died, December 9, 1926, of cervical cellulitis, aged 38.

Edwin Garvey Kirk, Chicago; Rush Medical College, Chicago, 1909; a Fellow, A. M. A.; formerly professor of pathology and bacteriology, Bennett Medical College, Chicago, and Loyola University School of Medicine, Chicago; aged 48; died, January 1, of chronic nephritis.

Smith D. Low, Pekin, Ill.; Eclectic Medical Institute, Cincinnati, 1882; Homeopathic Medical College of the State of New York, 1884; aged 66; died at Dallas, Texas, Dec. 11, 1926, of pneumonia.

Lucius McAlister, Polo, Ill.; Hahnemann Medical College and Hospital, Chicago, 1880; aged 67; died, November 20, 1926, of carcinoma of the spleen.

James J. Morgan, Chicago; Chicago Medical College, 1888; aged 63; died, October 31, 1926, of acute dilatation of the heart.

Claude Frank Shronts, Momence, Ill.; Northwestern University Medical School, Chicago, 1896; a Fellow, A. M. A.; formerly on the staff of the Kankakee (Ill.) State Hospital; aged 57; died, December 27, 1926, at St. Mary's Hospital, Kankakee, of diphtheria.

William John Uppendahl, Decatur, Ill.; Rush Medical College, Chicago, 1901; served during the World War; aged 48; died, December 29, 1926, at the Presbyterian Hospital, Chicago, of carcinoma of the stomach.

John R. Wallace, Evanston, Ill.; Bennett Medical College, Chicago, 1890; member of the Illinois State Medical Society; aged 65; died, December 16, 1926, of an injury received in a fall.

Edwin Younkin, Chicago; Eclectic Medical Institute, Cincinnati, 1866; aged 88; died, November 12, 1926, of gastric ulcer.

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